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RESULTS OF EXPERIMENTAL INVESTIGATIONS TO DETERMINE
EXTERNAL TANK PROTUBERANCE LOADS
USING A 0.03-SCALE MODEL OF THE
SPACE SHUTTLE LAUNCH CONFIGURATION (MODEL 47-OTS) IN
THE NASA/ARC UNITARY PLAN WIND TUNNEL
(IA190A/B)

by

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Prepared under NASA Contract Number NAS9-17840

by

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WIND TUNNEL TEST SPECIFICS:

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NASA SERIES NUMBER:	IA190A	IA190B
MODEL NUMBER:	47-OTS	
TEST DATES:	7 FEB-19 FEB.80	17 MAR-30 MAY 80
OCCUPANCY HOURS:	167 + 128	

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ABSTRACT

Data were obtained on a 3-percent model of the Space Shuttle launch vehicle in the NASA/Ames Research Center 11x11-foot and 9x7-foot Unitary Plan Wind Tunnels. This test series has been identified as IA190A/B and was conducted from 7 Feb. 1980 to 19 Feb. 1980 (IA190A) and from 17 March 1980 to 19 March 1980 and from 8 May 1980 to 30 May 1980 (IA190B). The primary test objective was to obtain structural loads on the following external tank protuberances:

- 1) LO₂ feedline
- 2) GO₂ pressure line
- 3) LO₂ antigeysers line
- 4) GH₂ pressure line
- 5) LH₂ tank cable tray
- 6) LO₂ tank cable tray
- 7) Bipod
- 8) ET/SRB cable tray
- 9) Crossbeam/Orbiter cable tray

To fulfill these objectives the following steps were taken:

- a) Eight 3-component balances were used to measure forces on various sections of 1 thru 6 above.
- b) 315 pressure orifices were distributed over all 9 above items. The LO_2 feedline was instrumented with 96 pressure taps and was rotated to four positions to yield 384 pressure measurements. The LO_2 antigeysers line was instrumented with 64 pressure taps and was rotated to two positions to yield 128 pressure measurements.
- c) Three Chrysler miniature flow direction probes were mounted on a traversing mechanism on the tank upper surface centerline to obtain flow field data between the forward and aft attach structures.
- d) Schlieren photographs and ultraviolet flow photographs were taken at all test conditions.

Data from each of the four test phases are presented.

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SCHEDULE	COEFFICIENTS PLOTTED	SCHEDULE	COEFFICIENTS PLOTTED	SCHEDULE	COEFFICIENTS PLOTTED
A	C _{AB1} VS •	E	C _{AB5} VS •	I	C _{PL} VS X _T
	C _{YB1} VS •		C _{YB5} VS •		M _L VS X _T
	C _{NB1} VS •		C _{NB5} VS •	J	• _{x2} VS X _T
B	C _{AB2} VS •	F	C _{AB6} VS •		• _{xy} VS X _T
	C _{YB2} VS •		C _{YB6} VS •	K	C _p VS •
	C _{NB2} VS •		C _{NB6} VS •	L	C _p VS X _T
C	C _{AB3} VS •	G	C _{AB7} VS •	M	C _p VS •
	C _{YB3} VS •		C _{YB7} VS •		
	C _{NB3} VS •		C _{NB7} VS •		
D	C _{AB4} VS •	H	C _{AB8} VS •		
	C _{YB4} VS •		C _{YB8} VS •		
	C _{NB4} VS •		C _{NB8} VS •		

INTRODUCTION

This report presents data obtained from a 3 percent model of the Space Shuttle launch vehicle (Model 47-OTS) in the NASA/Ames Research Center Unitary Plan Wind Tunnels. Testing at Mach numbers from 0.4 to 1.4 was conducted in the 11x11-foot tunnel (IA190A) and testing at Mach numbers from 1.55 to 2.5 was conducted in the 9x7-foot tunnel (IA190B).

The primary purpose of this test was to obtain loads information on the External Tank protuberances. A secondary purpose was to obtain flow field data between the external tank and the orbiter for ice debris analysis. To accomplish these objectives the test was run in four distinct phases. These phases were:

- 1) Force balance data: Eight 3-component balances were installed in the external tank to measure loads on four sections of the GO_2 pressure line/ LO_2 antigeysers line/ LH_2 tank cable tray array, three sections of the GH_2 pressure line, and one section of the GO_2 pressure line/ LO_2 tank cable tray array. Figure 2c shows the exact limits of each metric section and the numbering sequence of the balances
- 2) Pressure data: 315 pressure taps were used to obtain distributed pressure data on the ET protuberances. The pressure taps were located on the model as follows:

<u>Location</u>	<u>Sequence</u>	<u>Cum.Total</u>
LO ₂ feedline	1-96	96
LO ₂ antigeysers line	101-164	160
LH ₂ tank cable tray	201-268	228
GH ₂ pressure line	301-332	260
LO ₂ tank cable tray	401-420	280
Orbiter/ET attach	501-516	296
ET/SRB cable tray	601-612	308
GO ₂ pressure line	701-704	312
ET/SRB cable tray rake	901-903	315

Pressure taps were located at 16 stations on the LO₂ feedline with 6 taps at each station spaced 60° apart. The LO₂ feedline was mounted on the model in such a way as to allow indexing about its longitudinal axis in 15° increments. By indexing the LO₂ feedline 4 times the effective density of pressure measurements was increased to 24 taps at each station. This indexing was done manually so four runs were necessary to get all the data.

The LO₂ antigeysers line had four taps 90° apart at 16° stations. It was indexed once to 45° to give an effective pressure measurement density of 8 taps per station. All pressure tap locations are listed in table III. These data are presented in the Appendix.

The data were combined and interpolated after the test to get section coefficient data and distributed pressure data. (These data are documented under Chrysler special requests SPRT8R and SPRT8T.)

- 3) Probe data: Three miniature flow direction probes were mounted on a traversing carriage at the top centerline of the ET. The tip of the probes could move from $X_T = 1180.7$ to $X_T = 1926.3$. The three probes were located at $\theta_T = 165^\circ$, 180° and 195° and were .25 inches (model scale) above the tank surface. The probes measured local flow direction and velocity as well as local pressure. These data are also presented in the Appendix.
- 4) Oil flow: Oil was released from a manifold at $X_T = 731$ and allowed to flow down the tank surface and around the protuberances. Photographs of the resulting fluorescent oil patterns were taken at each α/β combination using ultraviolet lighting. Samples of these photographs are shown in Figures 3l thru 3p. Schlieren photographs were taken during the test to help analyze the flow field between the ET and orbiter but these were not successful and are not presented. All tank protuberances were updated to the latest lines prior to this test. The exterior moldline of the SOFI was modeled around all protuberances. Figures 2e and 2f show the details of the protuberance attachments and Figures 3a thru 3k show the entire model in detail.

NOMENCLATURE

<u>Symbol</u>	<u>Mnemonic</u>	<u>Description</u>
A_{Bi}		Axial force measured by balance i (1-8), pounds
a_L	AL	Local speed of sound, ft/sec
	BREF	Span of vehicle, inches
C_{Pi}	CPi	Pressure coefficient at orifice i $-(P_i - P_\infty)/q_\infty$
C_{ABi}	CABi	Axial force coefficient for balance i (1-8)
C_{NBi}	CNBi	Normal force coefficient for balance i (1-8)
C_{YBi}	CYBi	Side force coefficient for balance i (1-8)
D		Reference diameter of protuberance, inches
ET		External Tank
	GAP	Change in relative spacing from scale between orbiter and E.T., inches.
GH_2	GH2	Gaseous hydrogen
GO_2	GO2	Gaseous oxygen
K		A complex function relating local flow conditions at the probe tip to local pressure, determined during calibration of the probes and applied during data reduction.
LH_2	LH2	Liquid hydrogen
LO_2	LO2	Liquid oxygen
	LREF	Reference length of vehicle, inches
l		Reference length of metric protuberances, inches
M_L	ML	Local Mach number
M_∞	MACH	Freestream Mach number

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Mnemonic</u>	<u>Description</u>
N_{Bi}		Normal force measured by balance $i(1-8)$, pounds
OMS	OMS	Orbital Maneuvering System
P_i	Pi	Pressure at orifice i , psia
P_T	PT	Freestream total pressure, psia
P_{T_L}	PTL	Local total pressure, psia
P_L	PL	Local static pressure, psia
\bar{P}	PBAR	Average probe tip measured pressure, psia
P_{1-5}		Individual probe measured pressures, psia
$P_{1/P_{T_L}}$	P10PTL	Ratio of measured probe total pressure to actual local total pressure, from calibration.
P_∞	P	Freestream static pressure, psia
	POSTN	Position (1-4) identifying on which face of cable tray pressure tap is located. 1 = bottom, 2 = outbd, 3 = top, 4 = inboard.
q_∞	Q(PSF)	Freestream dynamic pressure, psf
q_L	QL	Local dynamic pressure, psf
R		Gas constant
Rn	RN/L	Reynolds number per unit length
SRB		Solid Rocket Booster
SSME		Space Shuttle Main Engines
	SREF	Reference area, in. ²
	SCALE	Model scale (0.03)
SOFI		Spray On Foam Insulation
T_L	TL	Local static temperature, °R

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Mnemonic</u>	<u>Description</u>
$T_{T\infty}$	TTF	Freestream total temperature, °R
V_{x_p}	VXP	Velocity component measured by a probe parallel to ET X-axis, ft/sec.
V_{R_p}	VRP	Radial velocity component measured by a probe perpendicular to local ET surface, ft/sec.
V_{θ_p}	VTP	Tangential velocity component measured by a probe perpendicular to VXP and VRP, ft/sec.
V_{x_T}	VXT	Velocity component measured by a probe parallel to ET x-axis, equal to VXP, ft/sec.
V_{y_T}	VYT	Velocity component measured by a probe parallel to Y-axis, ft/sec.
V_{z_T}	VZT	Velocity component measured by a probe parallel to Z-axis, ft/sec.
V_{L_p}	VLP	Magnitude of total velocity vector measured by a probe, ft/sec.
x_p	XP	Probe axial location, inches
x_T	XT	External Tank station, full scale, inches
x/L_s	XLS	Percent of total length of bipod strut
	XMRP	Location of model reference point along x-axis, inches
y_{B_i}		Side force measured by balance i (1-8), pounds
	YMRP	Location of model reference point along Y-axis, inches
	ZMRP	Location of model reference point along Z-axis, inches

NOMENCLATURE (Continued)

<u>Symbol</u>	<u>Mnemonic</u>	<u>Description</u>
α	ALPHA	Model pitch angle, degrees
α_L	ALPHAL	Local angle of attack of velocity vector at a probe tip relative to probe centerline, degrees
α_{xz}	ALFAXZ	Angle of attack of velocity vector at a probe tip when projected onto the X-Z plane, degrees
β	BETA	Model angle of sideslip, degrees
β_L	BETAL	Angle of sideslip of velocity vector at a probe tip when projected onto the X-Y plane, degrees
BXY	BETAXY	
δ	DELTA	Probe crossflow direction relative to the radial line perpendicular to local ET surface, deg., $\delta = \delta_c + 45^\circ$ for IA190A; $\delta = \delta_c - 45^\circ$ for IA190B.
δ_c	DELTAC	Probe crossflow direction relative to the probe reference line, deg. (0-360°)
δ_i	IB-ELV	Deflection angle of inboard elevons, degrees
δ_o	OB-ELV	Deflection angle of outboard elevons, degrees
γ		Ratio of specific heat at a constant pressure to specific heat at a constant volume, 1.4 for air
ρ	RHO	Probe pitch angle pressure parameter, function of P1-P5, used in calibration table lookup, degrees
ϵ	EPSLON	Probe directional pressure parameter, function of P1-P5, used in calibration table lookup, degrees
ϕ	PHI	Angle of rotation of the probe about the local radial direction, degrees
θ	THETA	General angular location on ET or protuberances, degrees

NOMENCLATURE (Concluded)

<u>Symbol</u>	<u>Mnemonic</u>	<u>Description</u>
θ_{AG}		Angular location of pressure taps on the LO ₂ antigeysers line, degrees
θ_{GP}		Angular location of pressure taps on the GO ₂ pressure line, degrees
θ_{HP}		Angular location of pressure taps on the GH ₂ pressure line, degrees
θ_{OF}		Angular location of pressure taps on the LO ₂ feedline, degrees
θ_p		Angular location of a probe, degrees
θ_s		Angular location of pressure taps on the bipod strut, degrees
θ_T		Angular location on the ET, degrees

CONFIGURATIONS INVESTIGATED

The model provided for this test was a 0.030 scale replica of the Rockwell International Space Shuttle Vehicle in the launch configuration. The launch configuration consists of the assembly of a payload carrying Orbiter, an expendable External Oxygen/Hydrogen Tank (ET) which provides fuel for the Orbiter main engines (SSME) and two expendable Solid Rocket Boosters (SRB). See figure 2a.

The Orbiter is of blended wing/body design with a double delta plan form ($81^\circ/45^\circ$ leading edge), 12% thick wing with full span elevons incorporating a six-inch interpanel gap between the independently deflectable inboard and outboard panels. A single swept (45°) centerline vertical tail with rudder/speed brake capability is mounted on the top of the orbiter behind the cargo bay and between the two Orbital Maneuvering System (OMS) pods. At the lower aft end of the fuselage is a body flap to aid in trim control when the speed brakes are used. Three engines (SSME) are mounted on the blunt base of the orbiter.

The External Tank is of cylindrical cross section with a nominal diameter of 333 inches and a maximum diameter of 336.2 inches. The forward section of the ET has a tangent ogive nose which terminates in a biconic nose cap over the LO_2 vent valve. The forward third of the tank is filled with liquid oxygen and the rest with liquid hydrogen. Covering the entire tank is up to two

inches of Spray On Foam Insulation (SOFI) to prevent ice formation. There are a number of external protuberances which consist of fluid lines, electrical conduits and attach hardware. The fluid lines modeled are the LO₂ feedline, LO₂ antigeysers line, GO₂ pressure line, GH₂ pressure line and the LH₂ feedline. Conduits modeled were the LO₂ tank cable tray, the LH₂ tank cable tray, the ET/SRB cable tray (on both sides) and all the brackets, fittings and fairings associated with each of these. Removable load reducing ramps were provided for each of these cable trays.

The two Solid Rocket Boosters are 146 inch nominal diameter cylinders with 18° half angle nose cones and a 13.27" spherical tip.

The SRB's and Orbiter were built to conform to ICD-2-0001, Revision C lines while the ET was updated to Revision E details.

The LH₂ pressure line was intentionally constructed at double scale diameter for the pressure phase of the test to allow room for instrumentation inside the line. This increased the diameter from 0.060 inches to 0.120 inches model scale. A scaled diameter line was used for the force, probe and oil flow phases of the test.

The aft Orbiter/ET attach structure was modified for structural reasons. The LH₂ feedline and LO₂ feedline extensions were used to support the orbiter. This caused slight deformities in each

of these lines.

The forward Orbiter/ET (bipod) attach structure was modified for a small portion of the pressure test. The diameter of the support posts was doubled to allow room for instrumentation. The majority of the pressure test and all the remaining testing was done with the scaled bipod.

During the same runs that the enlarged bipod was used, and for a few runs thereafter (see run schedule), the left hand SRB/ET cable tray and its load reduction ramp were removed and replaced with a three-tube rake.

Several runs were made during the "A" portion of the pressure test with the Orbiter raised 0.2 inches model scale from its normal position relative to the ET. These runs are indicated in the run schedule.

The following nomenclature was used during the test to identify model components.

B62	-140 A/B Body
C9	-140 A/B Canopy
E64	OV102 Elevon
W131	OV102 Wing
M16	-140C Short OMS pods
N112	SSME Nozzles

R5	146A Rudder
V8	146A Vertical Tail
FD3	Flipper doors
T39	External Tank with "E" protuberances
S27	Solid Rocket Boosters

INSTRUMENTATION

The instrumentation used during each of the four phases of the test were distinctly different from one another and required a complete disassembly of the model and reinstallation in the tunnel.

Force Balances

Eight separate 3-component balances were used to obtain protuberance force data. Each balance was mounted inside the tank and supported a length of one of the fluid lines or cable trays by small posts projecting through the tank surface. The exact location and size of the metric protuberances can be found in figure 2c.

The rated loads of each balance are listed below:

<u>Balance Position</u>	<u>Rated Load ~ lbs</u>		
	<u>N</u>	<u>Y</u>	<u>A</u>
1	3	3	1.5
2	12	12	6
3	12	12	6
4	12	12	6
5	12	12	6
6	3	3	1.5
7	3	3	1.5
8	3	3	1.5

Each balance was calibrated prior to the test to determine its basic calibration matrix and was check-loaded after installation to insure proper clearances and function.

Pressures

There were 315 pressure taps on the tank protuberances. These were recorded on 10 scanivalve modules driven by two drive/stepper motors mounted inside the ET. The location of the pressure taps is listed in Table III.

A completely different set of protuberances were used for the pressure measurements than those used for force data. The pressure lines were routed through the parts and were carried into the tank through or just behind a mounting structure to minimize flow disturbance. The only exception to this was at the aft end of the LO₂ feedline where 48 pressure tubes crossed from the LO₂ feedline to the tank. The resulting bundle of tubes was approximately the same diameter as the LO₂ feedline.

The diameter of the bipod and of the GH₂ pressure line were doubled from scale to allow room inside these parts for pressure tubing. Pressure taps 257 thru 268 listed with an asterisk in Table III are located on the crossbeam/ET cable tray that can be seen in Figure 3b as a small curved rectangular cross-section part near the top of the aft right-hand support strut. The taps are located, one on each face, at the forward end of the curved section (257~260), in the middle of the curved section (261~264) and at the upper tangent point (265~268) of the curved section. These are labeled in the data as being at X_T 4001, 2 or 3 for convenience only. These numbers do not reflect the actual location of the taps.

Probes

The probes used were constructed by the Chrysler/Slidell Engineering Office specifically for this test program. The probes are 0.050 inches in diameter with a 25° half angle conical tip. Five pressure orifices with an inside diameter of 0.005 inches are on the tip of each probe. Figure 2j shows the probes in detail. Each probe was calibrated by Chrysler for flow angle, Mach number and local pressure in the NASA/MSFC 14" TWT prior to the test. Figures 2k and 2l show the calibration fixture and installation.

Three probes were used simultaneously during the test. The resulting 15 pressures were read on 5 scanivalve modules using one drive mounted in the ET. The pressures were plumbed to the scanivalve such that all five pressures on one probe were read simultaneously.

Oil Flow

The oil flow phase of the test was conducted with the force balances in place on the tank. All pressure instrumented parts of the model that remain during this configuration were sealed at the orifice and disconnected at the scanivalve to prevent oil from damaging the transducers or plugging the tubing.

The oil was delivered to the model under pressure through a 1/4" copper line. A solenoid valve was mounted in the tank nose to control oil flow onto the tank surface.

Photographs were taken under ultraviolet light only from both sides of the model. An observer determined when the proper amount of fluorescent oil was present on the ET surface and triggered the camera. A sampling of these photographs are presented in Figures 3l thru 3p.

TEST FACILITIES DESCRIPTION

Ames 11 x 11-Foot Transonic

The Ames 11 x 11-Foot Transonic Wind Tunnel is a variable density, closed return, continuous flow type. This tunnel has an adjustable nozzle (two flexible walls) and a slotted test section to permit transonic testing over a Mach number range continuously variable from 0.4 to 1.4.

Ames 9 x 7-Foot Supersonic

The Ames 9 x 7-Foot Supersonic Wind Tunnel is a variable density, continuous flow type with an adjustable nozzle to permit supersonic testing over a Mach number range continuously variable from 1.5 to 2.5. The nozzle is of the asymmetric, sliding-block type in which the variation of the test section Mach number is achieved by translating, in the stream-wise direction, the fixed-contour block that forms the floor of the nozzle.

DATA REDUCTION

All pressure data recorded were reduced to standard pressure coefficients of the form.

$$C_{p_i} = \frac{P_i - P_\infty}{q_\infty}$$

These data are listed by geometric location for each $\alpha/\beta/M$ combination in the Appendix.

Force data for each of the eight balances were reduced to force coefficients per unit length of the form:

$$C_{N_{Bi}} = \frac{N_{Bi}}{q_\infty D \ell} \text{ (Normal force)}$$

$$C_{Y_{Bi}} = \frac{Y_{Bi}}{q_\infty D \ell} \text{ (Side force)}$$

$$C_{A_{Bi}} = \frac{A_{Bi}}{q_\infty D \ell} \text{ (Axial force)}$$

where Bi = balance position number (1-8)

D = protuberance reference diameter 0.0171 inches

ℓ = length of metric section

The reference axis system for each balance consists of three mutually perpendicular axes with the normal force axis

perpendicular to the local ET surface, axial force perpendicular to normal force and parallel to the ET centerline and side force parallel to the local ET surface and perpendicular to normal force and axial force. Forces were resolved at a point .116 inches above the local ET surface for the GH₂ pressure line and .147 inches above the local ET surface for the cable tray/antigeyser line/GO₂ pressure line array.

Probe data were reduced using calibration tables supplied by Chrysler/DATAMAN. These tables consisted of a three parameter table lookup and interpolation routine. The five probe pressures (figure 2j) were used to obtain the following three parameters:

$$\rho = \frac{\sqrt{(P_3 - P_5)^2 + (P_2 - P_4)^2}}{P_1}$$

$$\epsilon = 57.2958 \tan^{-1} \left[\frac{P_3 - P_5}{P_4 - P_2} \right]$$

$$P_1 = \frac{P_2 + P_3 + P_4 + P_5}{4P_1}$$

These parameters were used to obtain δ_c , M_L and α from the tables

δ_o = probe crossflow direction with respect to the probe reference line, deg

M_L = Local Mach number

α_L = angle of the flow relative to the probe centerline

For Test IA190A, $\delta = \delta_o + 45^\circ$

For Test IA190B, $\delta = \delta_o - 45^\circ$

Local total pressure, P_{TL} , was determined from the above parameters

$$P_{TL} = P_1/K$$

$$\text{where } K = f(\delta_o, M_L, \alpha_L)$$

Other local conditions were determined using standard perfect adiabatic flow relationships:

$$P_L = P_{TL} \left(1 + \frac{M_L^2}{5}\right)^{-3.5}$$

$$q_L = \frac{\gamma}{2} P_L M_L^2$$

$$a_L = \sqrt{\gamma R T_L}$$

$$T_L = \frac{5 T_{TL}}{5 + M_L^2}$$

$$V_{Lp} = M_L a_L$$

Having determined all of the local flow conditions relative to the probe reference line the local velocity components were determined in the probe reference system.

$$V_{X_p} = M_L a_L \cos \alpha_L$$

$$V_{R_p} = \frac{\sin \alpha_L M_L a_L}{\sqrt{1 + \tan^2 \delta}} = (\sin \alpha_L \cos \delta) M_L a_L$$

$$V_{\theta_p} = -\frac{\sin \alpha_L \tan \delta M_L a_L}{\sqrt{1 + \tan^2 \delta}} = -M_L a_L \sin \alpha_L \sin \delta$$

The velocity components were then rotated into the standard aircraft rectangular coordinate system

$$V_{X_T} = V_{X_p}$$

$$V_{Y_T} = V_{R_p} \sin \theta_p - V_{\theta_p} \cos \theta_p$$

$$V_{Z_T} = -V_{R_p} \cos \theta_p - V_{\theta_p} \sin \theta_p$$

Finally pitch and yaw angles of the velocity vector were determined

$$\alpha_{xz} = \tan^{-1} \left[\frac{V_{Z_T}}{V_{X_T}} \right]$$

$$\beta_{xy} = -\tan^{-1} \left[\frac{V_{Y_T}}{V_{X_T}} \right]$$

References

1. STS79-0308, "Pretest Information for Test IA190 of the 0.03-Scale Pressure Loads Space Shuttle Launch Vehicle Model 47-OTS in the NASA/ARC Unitary Plan Wind Tunnel," 18 Dec. 79 by S.R. Houlihan & A.R. Kanevsky, Rockwell International.
2. TN-AP-70-462, "Results of a Test to Determine the Feasibility of Use of Two Miniature Flow Direction and Velocity Measuring Probes at Subsonic and Supersonic Speeds," 1 June 70 by J. E. Foley, Chrysler Corporation.
3. DMS-TP-79-1, "Plan for a Wind Tunnel Test to Calibrate Four Miniature Flow Velocity and Direction Measuring Probes at Mach Numbers from 0.4 to 1.96," 5 Dec. 79 by John E. Vaughn, Chrysler Corporation.
4. SAS/AERO/80-792, "Final Report for ET Protuberance Airloads Wind Tunnel Test IA190A&B," 12 Jan. 81 by J. W. Kuczwara, Rockwell International.
5. SAS/AERO/80-771, "ET Protuberance and Flow Field Final Report - IA-190A/B (EMS MILESTONE 790-200-205)," 10 Nov. 80 by J.W. McClymonds, Rockwell International.

TABLE 1 TEST CONDITIONS

TEST : IA190A/B		DATE :	
TEST CONDITIONS			
MACH NUMBER	REYNOLDS NUMBER <small>(per unit length)</small>	DYNAMIC PRESSURE <small>(pounds/sq.-inch)</small>	STAGNATION TEMPERATURE <small>(degrees Fahrenheit)</small>
0.60	5.00×10^6	600 psf	100
0.90	3.69×10^6		
1.10	3.23×10^6		
1.25	3.03×10^6		
1.40	2.93×10^6		
1.55	2.85×10^6		
2.00	2.86×10^6		
2.50	3.07×10^6	↓	↓

BALANCE UTILIZED: See Instrumentation Section

	CAPACITY:	ACCURACY:	COEFFICIENT TOLERANCE:
NF	_____	_____	_____
SF	_____	_____	_____
AF	_____	_____	_____
PM	_____	_____	_____
RM	_____	_____	_____
YM	_____	_____	_____

COMMENTS:

[illegible]

TABLE II - EXTERNAL TANK PROTUBERANCE LOADS TEST (IA190A) RUN SCHEDULE
PRESSURE

TEST: IA190A (ARC 411-1-11)										DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MARCH 1980								
DATA SET		CONFIGURATION	SCHD.		PARAMETERS						ALPHA				T	B	S	T	R	U	N	N	U	M	B	B	R	S
IDENTIFIER			Beta	Mach	Q	ELVI	ELVO	LO2	A-G	GAP	-4	0	+4															
R3U\$12		OTS BIPOD / RAKE /	A	0.60	600	10	0	0	0	0	119	120	121															
R3U\$13		RAMPS ON	A	0.90	600	10	0	0	0	0	116	117	118															
R3U\$14			A	1.10	600	10	0	0	0	0	113	114	115															
R3U\$15			B	1.25	600	10	0	0	0	0	110	111	112															
R3U\$16			A	1.40	600	10	0	0	0	0	107	108	109															
R3U\$17		OTS RAMPS ON / RAKE	A	0.60	600	10	9	0	0	0	138	139	140															
R3U\$18			A	0.90	600	10	9	0	0	0	135	136	137															
R3U\$19			A	1.10	600	10	9	0	0	0	131	132	133															
R3U\$20			B	1.25	600	10	0	0	0	0	129	128	127															
R3U\$21			A	1.40	600	10	0	0	0	0	124	125	126															
R3U\$22		OTS RAMPS ON	B	0.60	600	10	9	15	45	0	238	239	240															
R3U\$23			B	0.90	600	10	9	15	45	0	235	236	237															
R3U\$24			B	1.10	600	10	9	15	45	0	232	233	234															
R3U\$25			B	1.25	600	10	0	15	45	0	245	246	247															
R3U\$26			B	1.40	600	10	0	15	45	0	242	243	244															
R3U\$27			A	0.60	600	10	9	30	0	0	203	204	205															
R3U\$28			A	0.90	600	10	9	30	0	0	200	201	202															
R3U\$29			A	1.10	600	10	9	30	0	0	197	198	199															
R3U\$30			B	1.25	600	10	0	30	0	0	210	211	212															
R3U\$31			A	1.40	600	10	0	30	0	0	207	208	209															
alpha or beta			A: BETA = -4, 0, +4, DEG.										\$: B - LO2 ANTIGEYSER LINE				\$: F - GH2 PRESSURE LINE											
SCHEDULES			B: BETA = -4, -2, 0, +2, +4, DEG.										\$: C - GO2 PRESSURE LINE				\$: G - ET /SRB CABLE TRAY											
			\$: A - TANK CABLE TRAYS										\$: D - LO2 FEEDLINE				\$: H - PRESSURE RAKE											
													\$: E - FWD ATTACH STRUTS															

alpha or beta
SCHEDULES
A: BETA = -4, 0, +4, DEG.
B: BETA = -4, -2, 0, +2, +4, DEG.
\$: A - TANK CABLE TRAYS
\$: B - LO2 ANTIGEYSER LINE
\$: C - GO2 PRESSURE LINE
\$: D - LO2 FEEDLINE
\$: E - FWD ATTACH STRUTS
\$: F - GH2 PRESSURE LINE
\$: G - ET / SRB CABLE TRAY
\$: H - PRESSURE RAKE

NOTE : WHEN RAKE IS INSTALLED, THE L. H. ET / SRB CABLE TRAY RAMP IS REMOVED

TABLE II - EXTERNAL TANK PROTUBERANCE LOADS TEST (IA190A) RUN SCHEDULE
PRESSURE (CONT'D)

TEST: IA190A (ARC 411-1-11)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MARCH 1980	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		PARAMETERS							ALPHA		
		Beta	Mach	Q	ELVI	ELVO	LO2	A-G	GAP	-4	0	+4	
R3U\$32	OTS RAMPSON	B	0.60	600	10	9	45	45	0	228	229	230	
R3U\$33		B	0.90	600	10	9	45	45	0	225	226	227	
R3U\$34		B	1.10	600	10	9	45	45	0	222	223	224	
R3U\$35		B	1.25	600	10	0	45	45	0	218	219	220	
R3U\$36		B	1.40	600	10	0	45	45	0	215	216	217	
R3U\$37		A	0.60	600	10	0	15	45	0.20	262	263	264	
R3U\$38		A	0.90	600	10	0	15	45	0.20	259	260	261	
R3U\$39		A	1.10	600	10	0	15	45	0.20	256	257	258	
R3U\$40		B	1.25	600	10	0	15	45	0.20	253	254	255	
R3U\$41		A	1.40	600	10	0	15	45	0.20	250	251	252	
R3U\$42	OTS RAMPS OFF	A	0.60	600	10	9	0	0	0	157	158	159	
R3U\$43		A	0.90	600	10	9	0	0	0	154	155	156	
R3U\$44		A	1.10	600	10	9	0	0	0	151	152	153	
R3U\$45		A	1.25	600	10	0	0	0	0	174	175	176	
R3U\$46		A	1.40	600	10	0	0	0	0	171	172	173	
R3U\$47		A	0.60	600	10	9	30	0	0	193	194	195	
R3U\$48		A	0.90	600	10	9	30	0	0	190	191	192	
R3U\$49		A	1.10	600	10	9	30	0	0	187	188	189	
R3U\$50		B	1.25	600	10	0	30	0	0	183	184	185	
R3U\$51		A	1.40	600	10	0	30	0	0	180	181	182	

alpha or beta
SCHEDULES

A: BETA = -4, 0, +4 DEG. \$: B - LO2 ANTIGEYSER LINE \$: F - GH2 PRESSURE LINE
 B: BETA = -4, -2.0, +2, +4, DEG. \$: C - GO2 PRESSURE LINE \$: G - ET / SRB CABLE TRAY
 \$: A - TANK CABLE TRAYS \$: D - LO2 FEEDLINE \$: H - PRESSURE RAKE
 \$: E - FWD ATTACH STRUTS

TABLE II -- EXTERNAL TANK PROTECTOR LOADS TEST (IA190A) RUN SCHEDULE TRAVERSING PROBES

[illegible]

alpha or beta
SCHEDULES

A: BETA = -4, 0, +4 DEG.

S: 1 – LEFT TRAVERSING PROBE (PROBE #31)

\$: 2 – MID TRAVERSING PROBE (PROBE #46)

\$: 3 - RIGHT TRAVERSING PROBE (PROBE #43)

[illegible]

A: BETA = -4, 0, +4 DEG.

alpha or beta
SCHEDULES

NOTE: P. POS. = PROBE POSITION

TABLE II - EXTERNAL TANK PROTUBERANCE LOADS TEST (IA190B) RUN SCHEDULE
PRESSURE

TEST: IA190B (ARC 411-1-97)			DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: JUNE 1980						
DATA SET		CONFIGURATION	SCHD.		PARAMETERS							BETA							
IDENTIFIER			Alpha	Mach	Q	ELVI	ELVO	LO2	A-G		-6	-4	0	+4	+6				
R3V\$01		OTS BIPOD / RAKE /	A	1.55	600	8	-5	30	0			354	355		356		357		358
R3V\$02		RAMPS (1)	D	2.00	600	8	-5	30	0			359	360		361		362		363
R3V\$03			D	2.50	600	8	-5	30	0			364	365		366		367		368
R3V\$04		OTS (RAMPS (1)	B	1.55	600	8	-5	0	45				327		328		329		
R3V\$05			B	2.00	600	8	-5	0	45				331		332		333		
R3V\$06			B	2.50	600	8	-5	0	45				335		336		337		
R3V\$07			C	1.55	600	8	-5	15	45				319		320		321		
R3V\$08			C	2.00	600	8	-5	15	45				322		323		324		
R3V\$09			B	1.55	600	8	-5	30	0			370	371		372		373		374
R3V\$10			D	2.00	600	8	-5	30	0			375	376		377		378		379
R3V\$11			D	2.50	600	8	-5	30	0			380	381		382		383		384
R3V\$12			B	1.55	600	8	-5	45	0				340		341		342		
R3V\$13			B	2.00	600	8	-5	45	0				344		345		346		
R3V\$14			B	2.50	600	8	-5	45	0				348		349		350		
R3V\$15			C	1.55	600	10	-5	15	45				300		301		302		
R3V\$16			C	2.00	600	10	-5	15	45				303		304		305		
R3V\$17			C	2.50	600	10	-5	15	45				306		307		308		
R3V\$18			C	1.55	600	0	-2	15	45				310		311		312		
R3V\$19			C	2.00	600	0	-2	15	45				313		314		315		
R3V\$20			C	2.50	600	0	-2	15	45				316		317		318		

alpha or beta
SCHEDULES
A: ALPHA = -4, 0, +4, +6, DEG. \$: A - TANK CABLE TRAYS \$: E - FWD ATTACH STRUTS
B: ALPHA = -6, -4, 0, +4, DEG. \$: B - LO2 ANTIGEYSER LINE \$: F - GH2 PRESSURE LINE
C: ALPHA = -4, 0, +4, DEG. \$: C - GO2 PRESSURE LINE \$: G - ET / SRB CABLE TRAY
D: ALPHA = -6, -4, 0, +4, +6, DEG. \$: D - LO2 FEEDLINE \$: H - PRESSURE RAKE

NOTE : RAMPS (1) INCLUDES LH2 TANK CABLE TRAY RAMP AND ET / SRB CABLE TRAY RAMPS
(EXCEPT WHEN RAKE IS INSTALLED, THE L.H. ET / SRB CABLE TRAY IS REMOVED)

TABLE II -- EXTERNAL TANK PROTUBERANCE LOADS TEST (IA190B) RUN SCHEDULE
FORCE

TEST: IA190B (ARC 411-2-97)				DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: JUNE 1980			
DATA SET IDENTIFIER		CONFIGURATION		SCHD.		PARAMETERS				BETA							
				Alpha	Beta	Mach	Q	ELVI	ELVO		-6	-4	0	+4	+6		
R3V\$43			OTS (RAMPS ON)	A	---	1.55	600	8	-5		517	518	519	520			
R3V\$44				A	---	2.00	600	8	-5		522	523	524	525	521		
R3V\$45				A	---	2.50	600	8	-5		527	528	529	530	526		
R3V\$46			OTS (RAMPS OFF)	A	---	1.55	600	8	-5		533	534	535	536	531		
R3V\$47				A	---	2.00	600	8	-5		539	540	541	542	537		
R3V\$48				A	---	2.50	600	8	-5		545	546	547	548	543		
										ALPHA							549
R3V\$49			OTS (RAMPS OFF)	0	B	1.55	600	8	-5				538				
R3V\$50				0	B	2.00	600	8	-5				544				
R3V\$51				0	B	2.50	600	8	-5				550				
										BETA							
R3V\$52			OIL FLOW /	A	---	1.55	600	8	-5		552	553	554	555	556		
R3V\$53			OTS (RAMPS ON)	A	---	2.00	600	8	-5		557	558	559	560	561		
R3V\$54				A	---	2.50	600	8	-5		562	563	564	565	566		

TABLE II -- EXTERNAL TANK PROTUBERANCE LOADS TEST (IA190B) RUN SCHEDULE TRAVERSING PROBES

[illegible]

	P-13	NIGHT INVADEING TROBE	[TROBE #43]
PROBE POSITION :	198 COUNTS/INCH MODEL SCALE STARTING AT XT = 1180.7		
PROBES LOCATED AT TANK THETA =	165, 180, & 195 DEGREES AT .25 INCHES ABOVE SURFACE		

Table III. PRESSURE TAP LOCATIONS

LO₂ FEEDLINE

X _T	θ_{OF} (Nominal Position)					
	0°	60°	120°	180°	240°	300°
1050	1	2	3	4	5	6
1100	7	8	9	10	11	12
1150	13	14	15	16	17	18
1200	19	20	21	22	23	24
1250	25	26	27	28	29	30
1300	31	32	33	34	35	36
1350	37	38	39	40	41	42
1400	43	44	45	46	47	58
1450	49	50	51	52	53	54
1500	55	56	57	58	59	60
1600	61	62	63	64	65	66
1700	67	68	69	70	71	72
1800	73	74	75	76	77	78
1900	79	80	81	82	83	84
1950	85	86	87	88	89	90
2000	91	92	93	94	95	96

Table III. PRESSURE TAP LOCATIONS (Continued)

LO₂ ANTIGEYSER LINE

X _T	Θ _{AG} (Nominal Position)			
	0°	90°	180°	270°
1050	101	102	103	104
1100	105	106	107	108
1130	109	110	111	112
1180	113	114	115	116
1240	117	118	119	120
1300	121	122	123	124
1370	125	126	127	128
1420	129	130	131	132
1450	133	134	135	136
1500	137	138	139	140
1625	141	142	143	144
1690	145	146	147	148
1820	149	150	151	152
1930	153	154	155	156
1965	157	158	159	160
2000	161	162	163	164

GH₂ PRESSURE LINE (0.06 SCALE)

X _T	Θ _{HP}			
	0°	90°	180°	270°
1120	301	302	303	304
1180	305	306	307	308
1300	309	310	311	312
1500	313	314	315	316
1690	317	318	319	320
1950	321	322	323	324
2000	325	326	327	328
2030	329	330	331	332

GO₂ PRESSURE LINE

X _T	Θ _{OP}			
	0°	90°	180°	270°
950	701	702	703	704

Table III. PRESSURE TAP LOCATIONS (Continued)

LH₂ TANK CABLE TRAY

X _T	POSITION			
	BOTT	OUTBD	TOP	INBD
1130	201	202	203	204
1180	205	206	207	208
1240	209	210	211	212
1300	213	214	215	216
1370	217	218	219	220
1420	221	222	223	224
1450	225	226	227	228
1500	229	230	231	232
1625	233	234	235	236
1690	237	238	239	240
1820	241	242	243	244
1930	245	246	247	248
1965	249	250	251	252
2000	253	254	255	256
*4001	257	258	259	260
*4002	261	262	263	264
*4003	265	266	267	268

LO₂ TANK CABLE TRAY (OGIVE)

X _T	POSITION			
	BOTT	OUTBD	TOP	INBD
800	401	402	403	404
820	405	406	407	408
835	409	410	411	412
850	413	414	415	416
880	417	418	419	420

ET/SRB CABLE TRAY (R. H. SIDE)

Θ _T	POSITION			
	BOTT	OUTBD	TOP	INBD
116°	601	602	603	604
120°	605	606	607	608
124°	609	610	611	612

TABLE III STATIC PRESSURE TAP LOCATIONS - CONCLUDED

ORBITER/ET FORWARD ATTACH STRUT (BIPOD)

x/l_s	θ_s							
	0	45°	90°	135°	180°	225°	270°	315°
.25		(501)		502		503		(504)
.50	(505)	(506)	507	508	509	510	(511)	(512)
.75		(513)		514		515		(516)

NOTE: NUMBERS IN PARENTHESIS ARE ON THE LEFT-HAND LEG OF THE BIPOD. OTHERS ARE ON THE RIGHT-HAND LEG.

ET/SRB CABLE TRAY RAKE

θ_T	RAKE
	TAP NO.
116°	901
120°	902
124°	903

NOTE: THIS RAKE REPLACES THE ET/SRB CABLE TRAY AND RAMP ON THE LEFT-HAND SIDE OF THE ET

Notes

1. Positive directions of force coefficients, moment coefficients, and angles are indicated by arrows
2. For clarity, origins of wind and stability axes have been displaced from the center of gravity

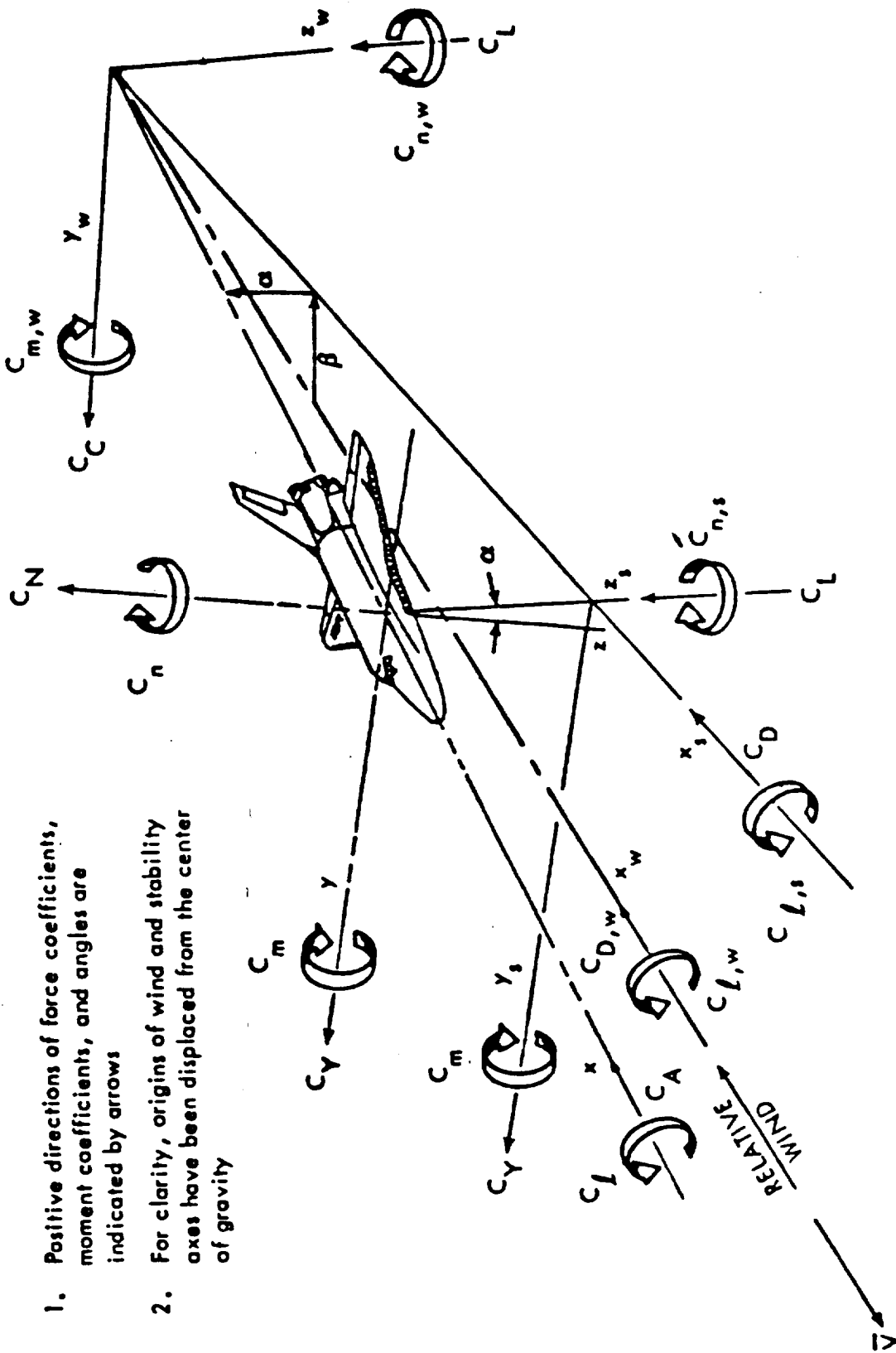


Figure 1. Model Axis Systems and Sign Conventions
a. Orbiter Axis System

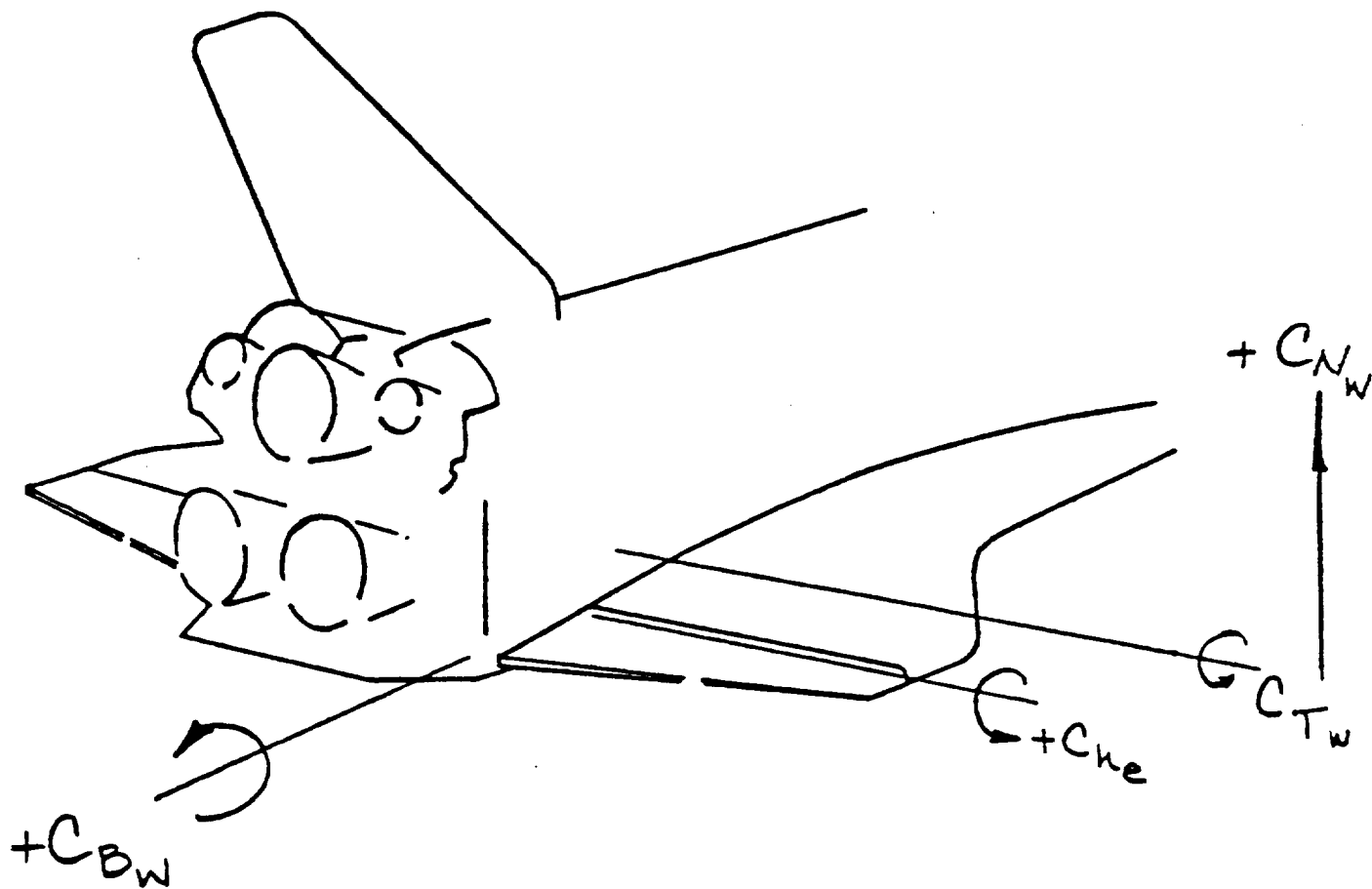


Figure 1. Model Axis Systems and Sign Conventions
b. Moment Sign Conventions

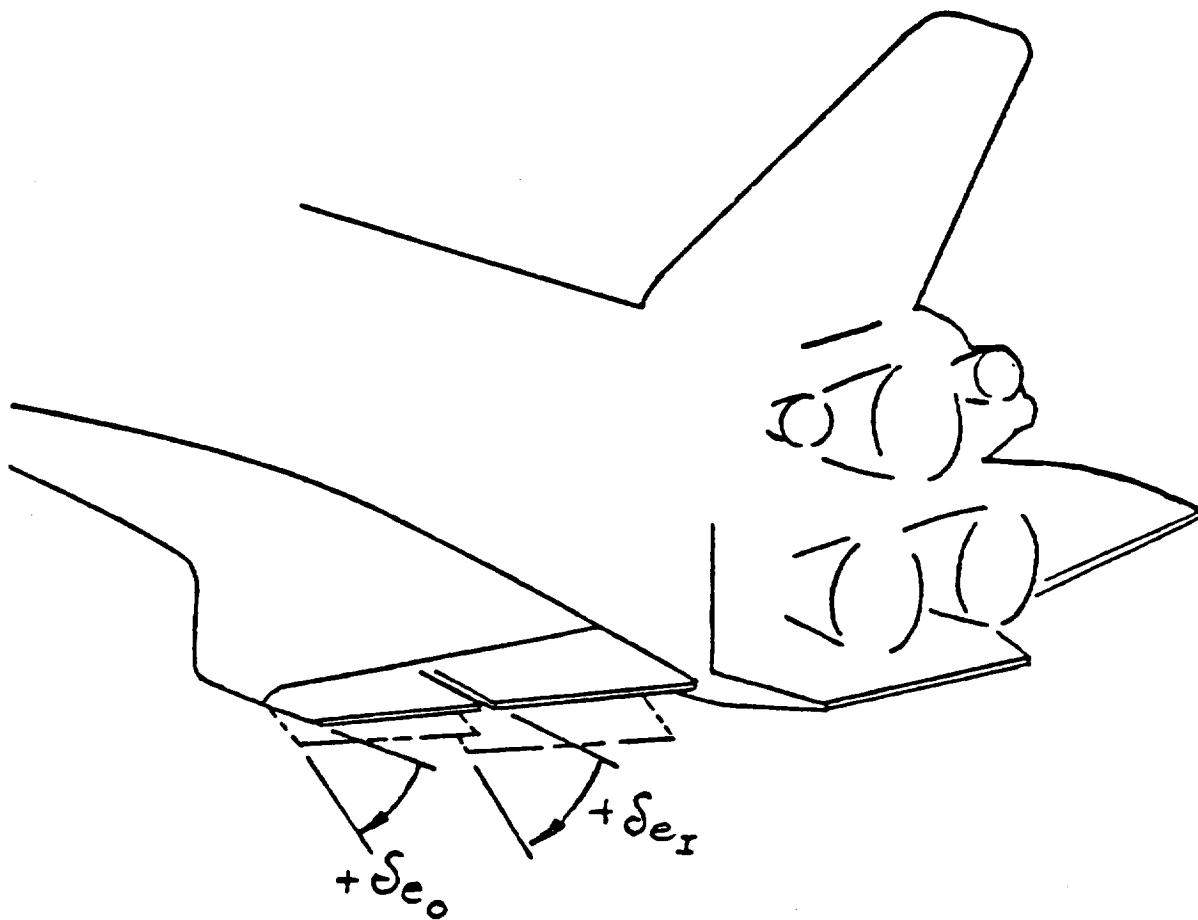
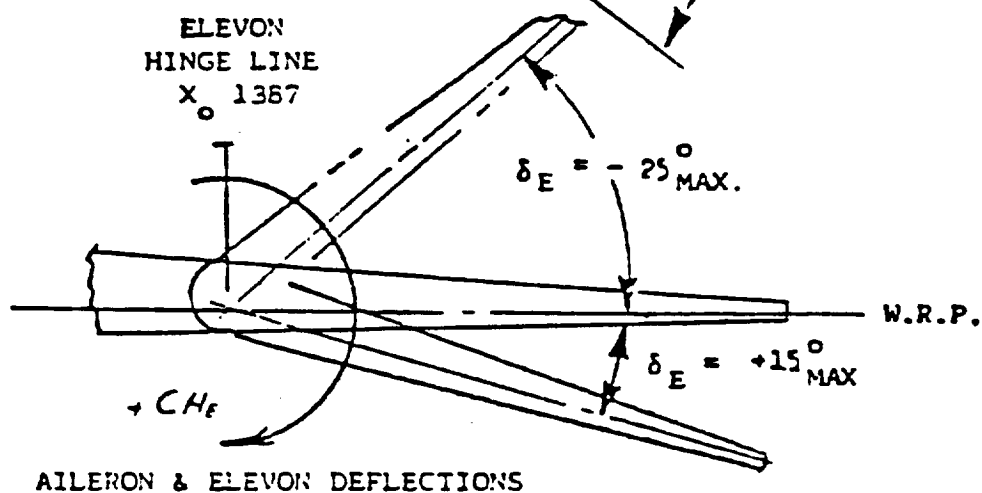
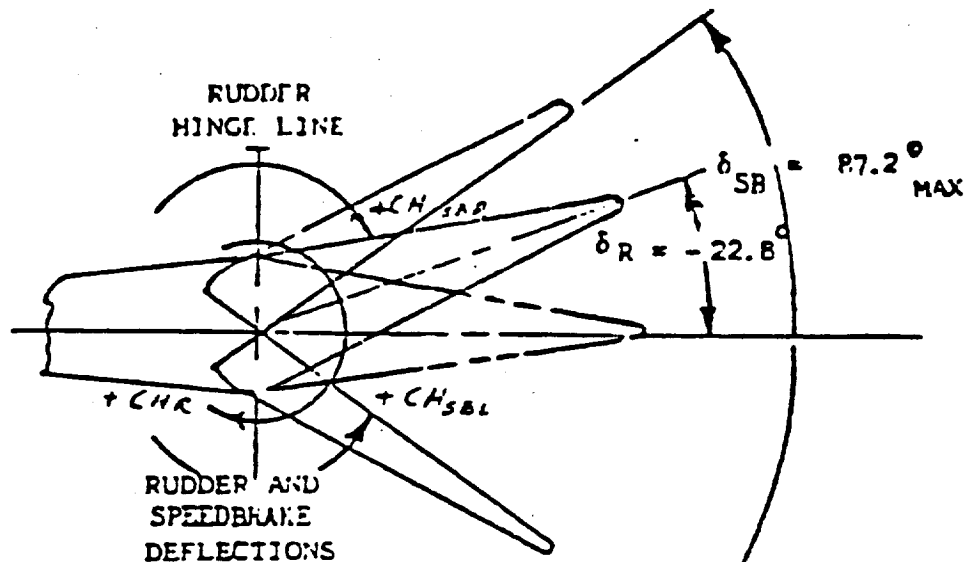
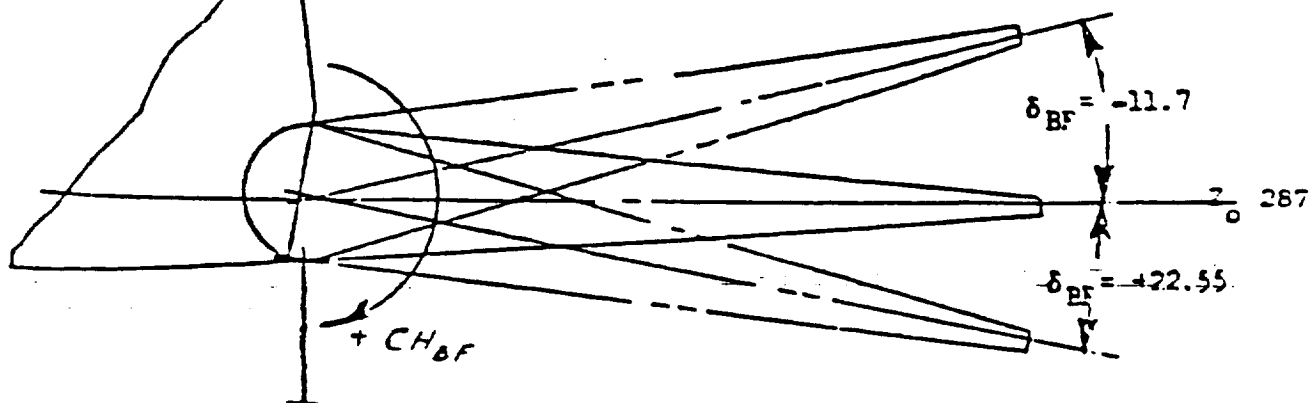


Figure 1. Model Axis Systems and Sign Conventions
c. Elevon Sign Conventions



AILERON & ELEVON DEFLECTIONS

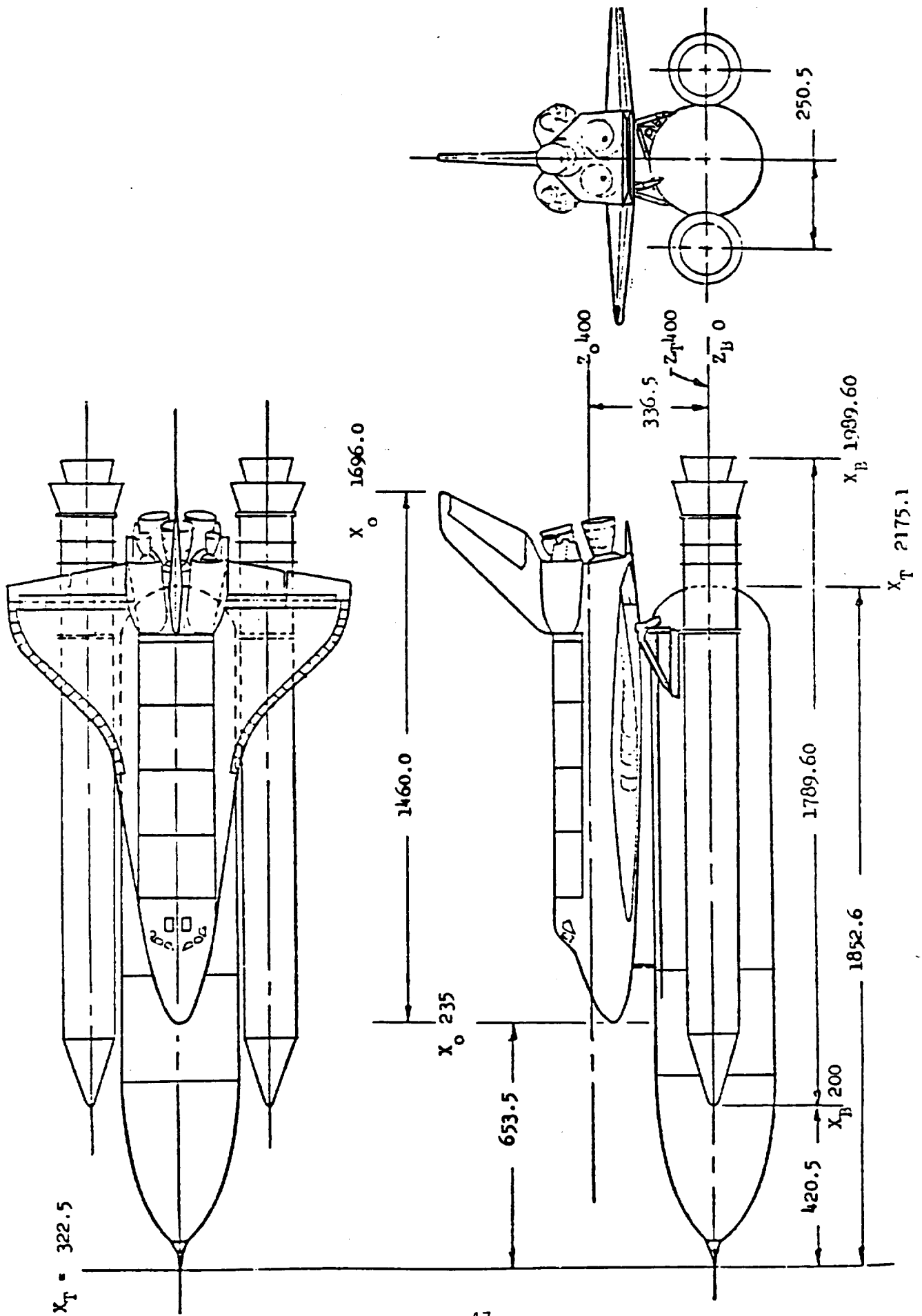
$$\delta_a = \frac{\delta_{EL} - \delta_{ER}}{2} \quad \delta_E = \frac{\delta_{EL} + \delta_{ER}}{2}$$

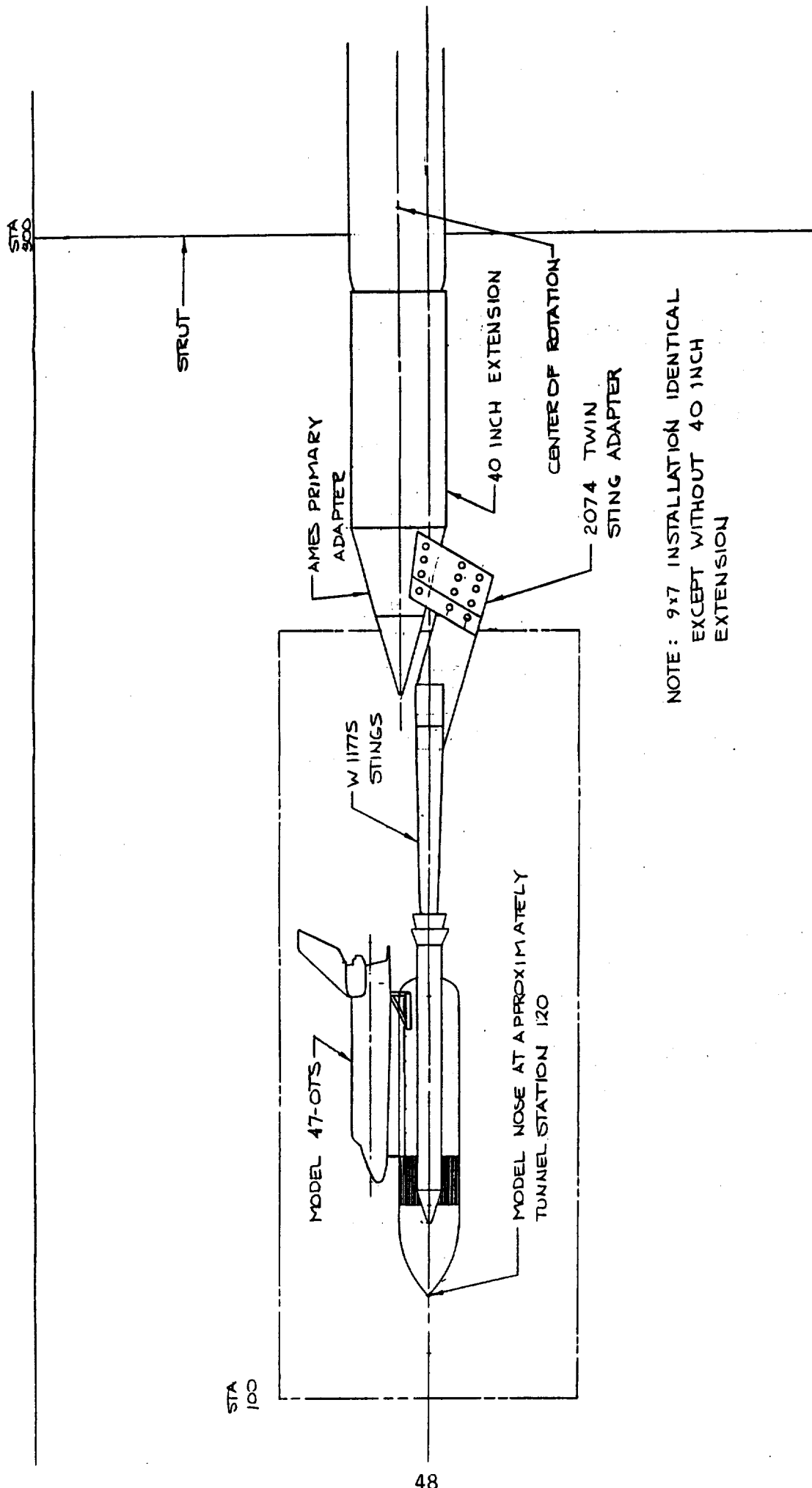


BODY FLAP DEFLECTIONS
 $X_0 1532$

BODY FLAP
HINGELINE

Figure 1. Model Axis Systems and Sign Conventions
d. Definition of Angular Measurements





MODEL 47-OTS-INSTALLATION-11x11 FT

Figure 2. Model Sketches
b. Tunnel Installation

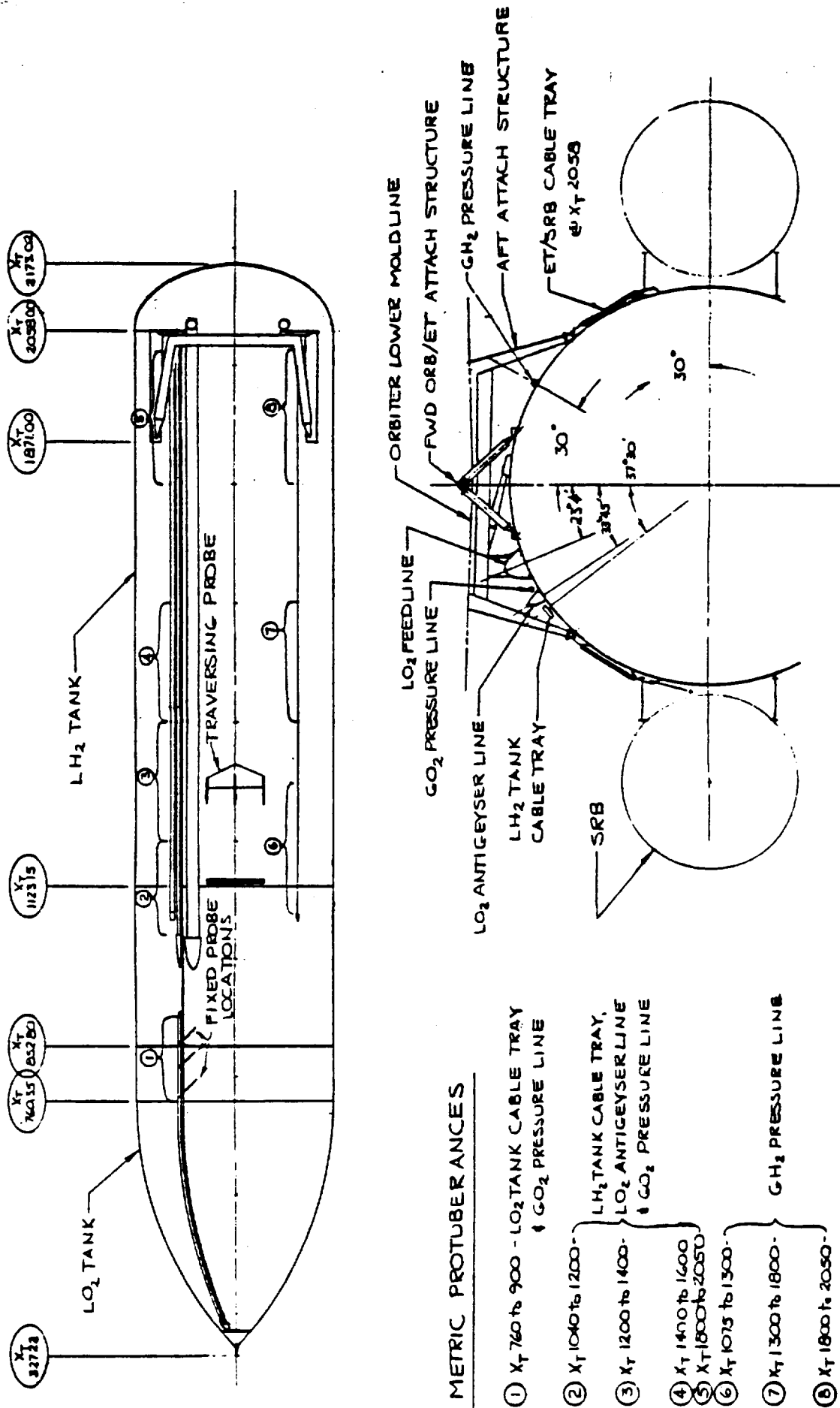


Figure 2. Model Sketches
c. ET Angular Definitions and Balance Locations

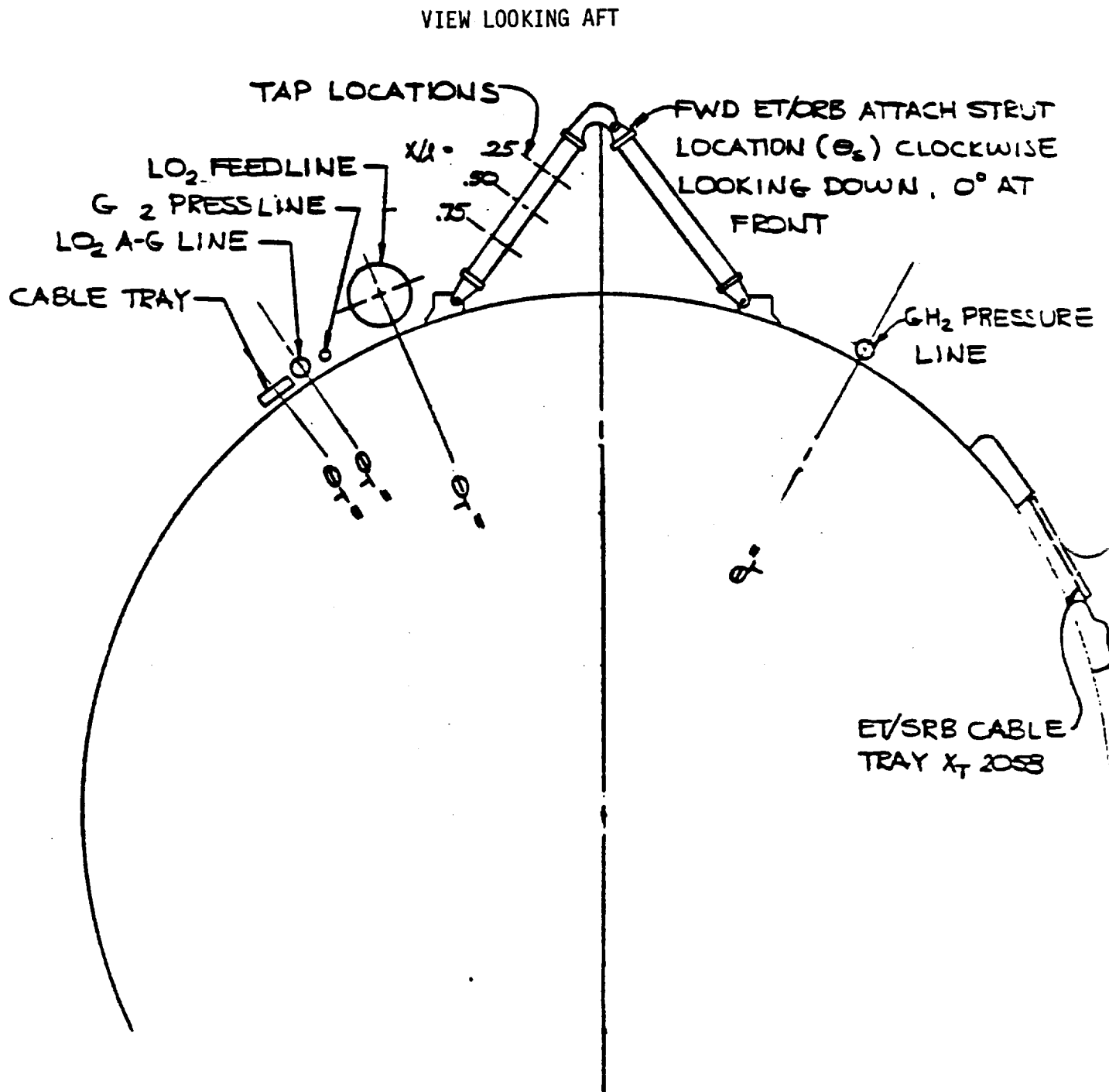


Figure 2. Model Sketches
d. ET Protuberance Locations

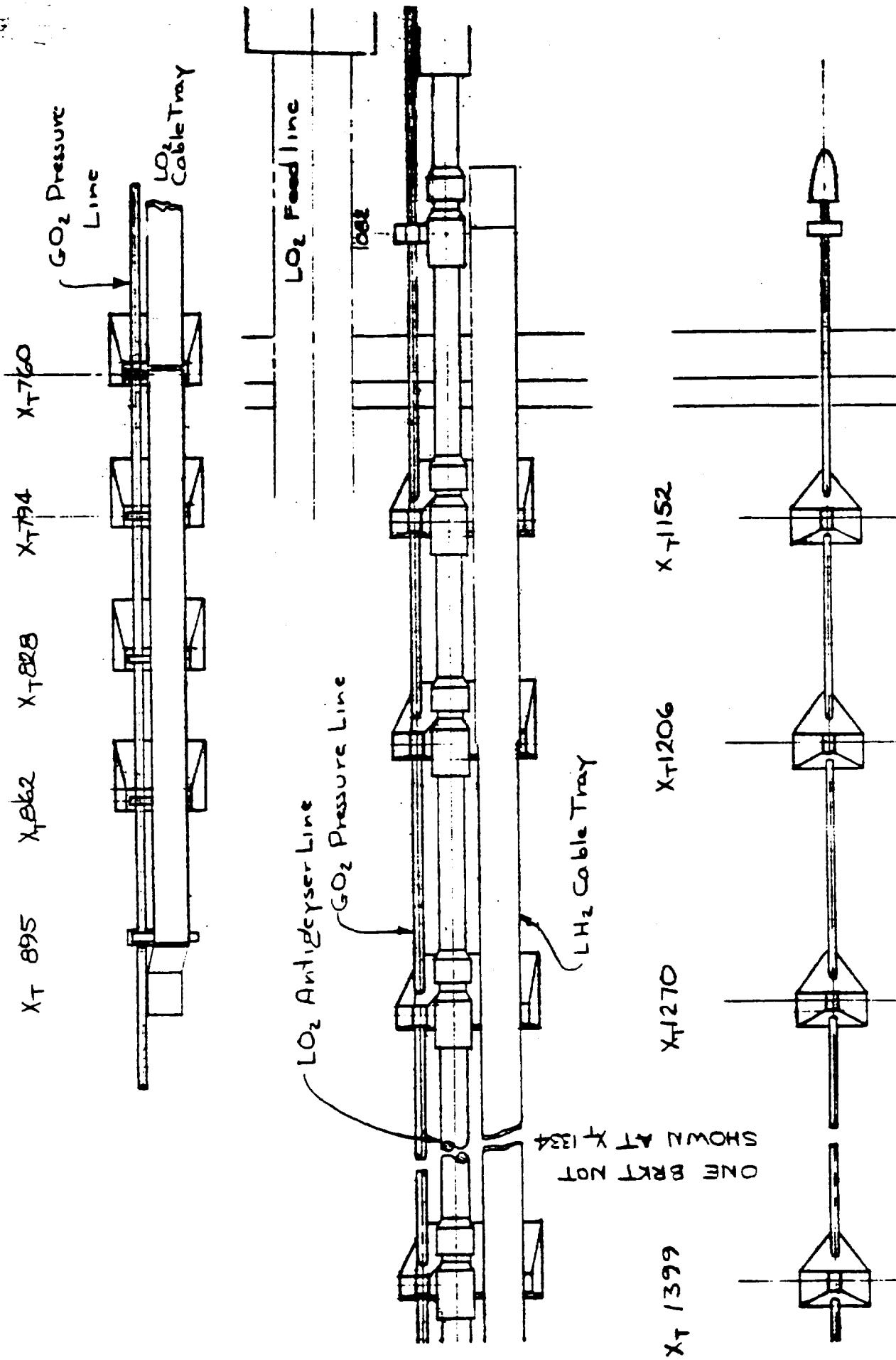


Figure 2. Model Sketches
c. Metric Protuberance Details

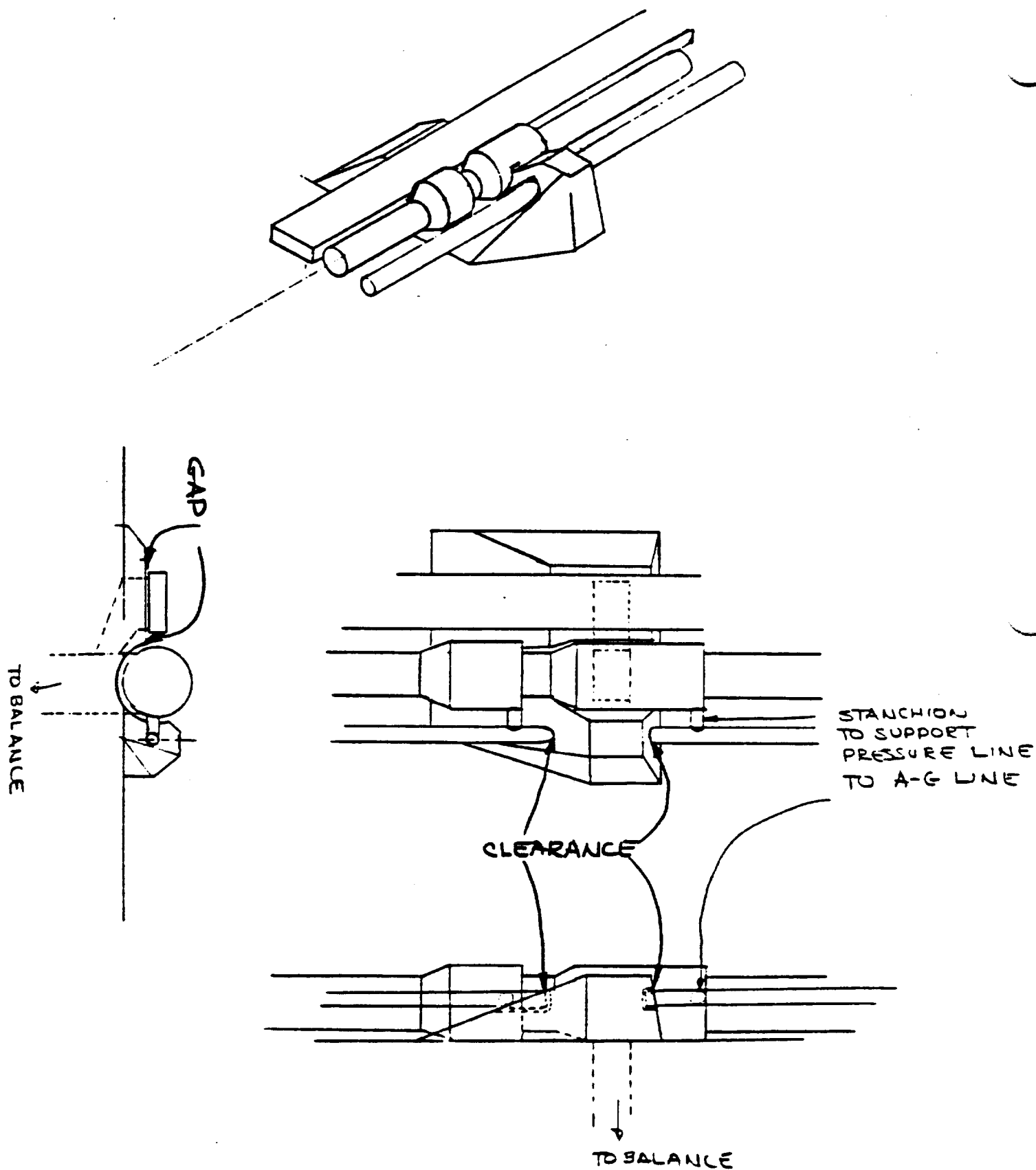


Figure 2. Model Sketches

f. Metric Protuberance Attachment Details

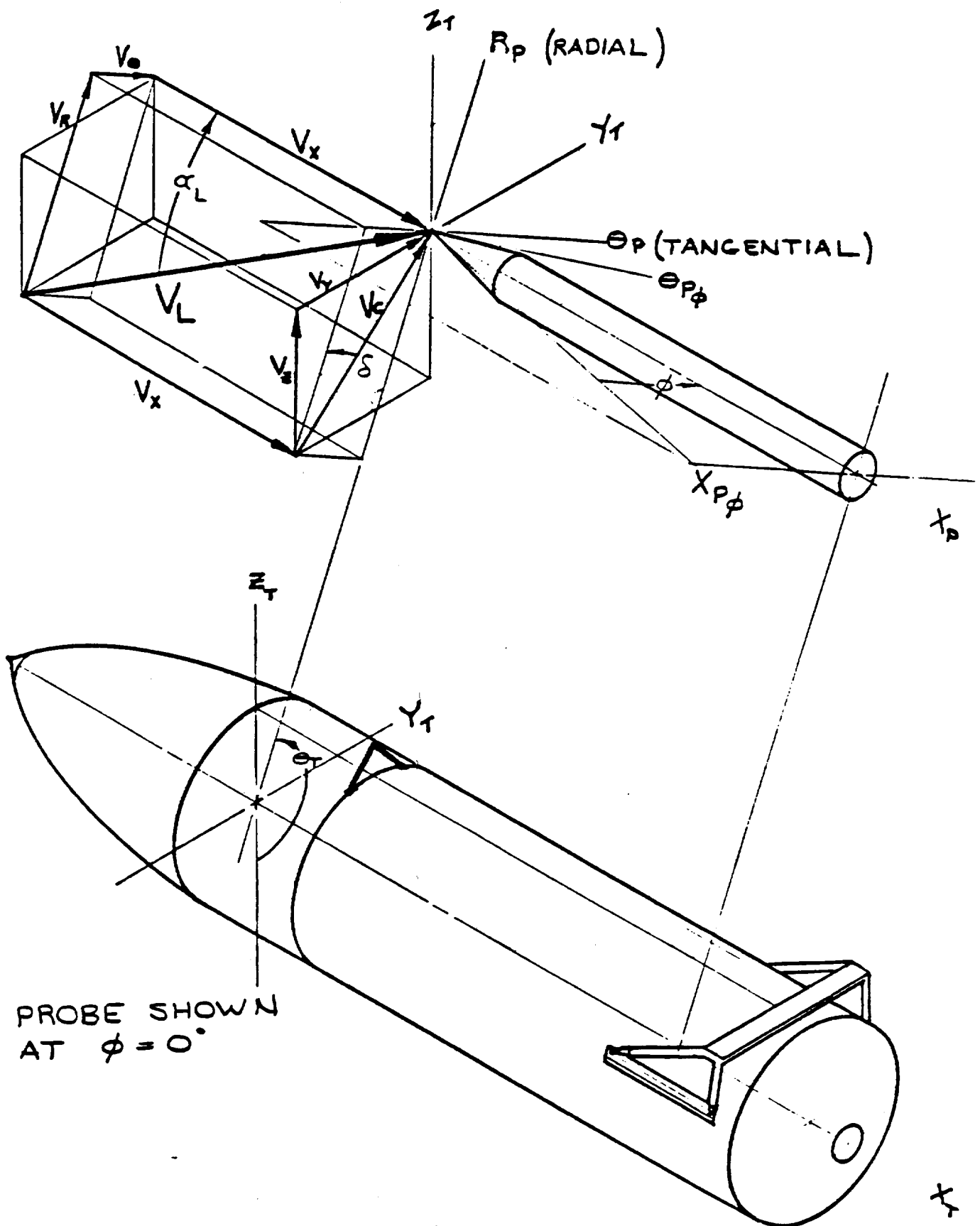


Figure 2. Model Sketches
g. Probe Axis Definition

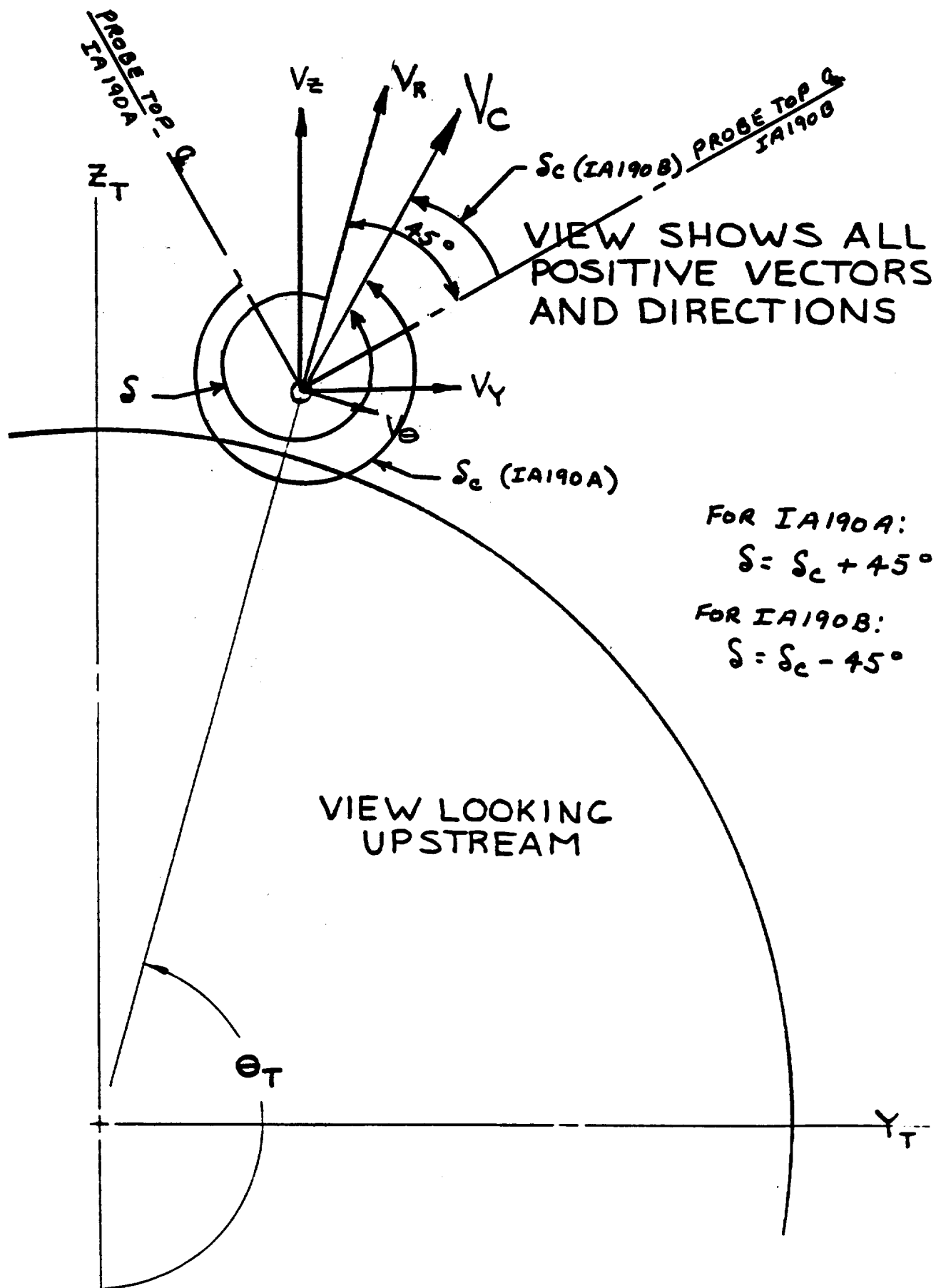


Figure 2. Model Sketches
h. Probe Axis Details

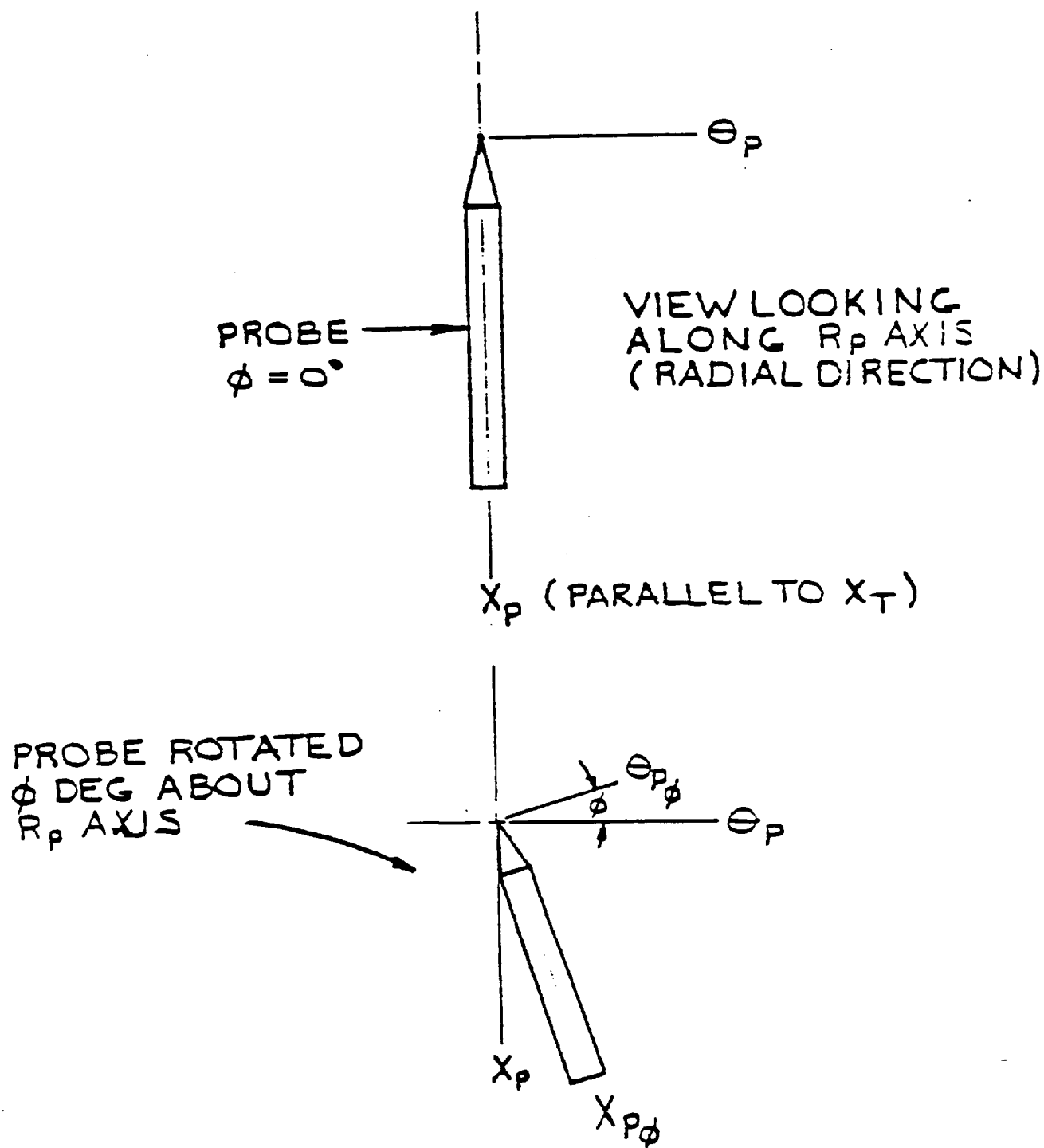


Figure 2. Model Sketches
 i. Probe Axis Details

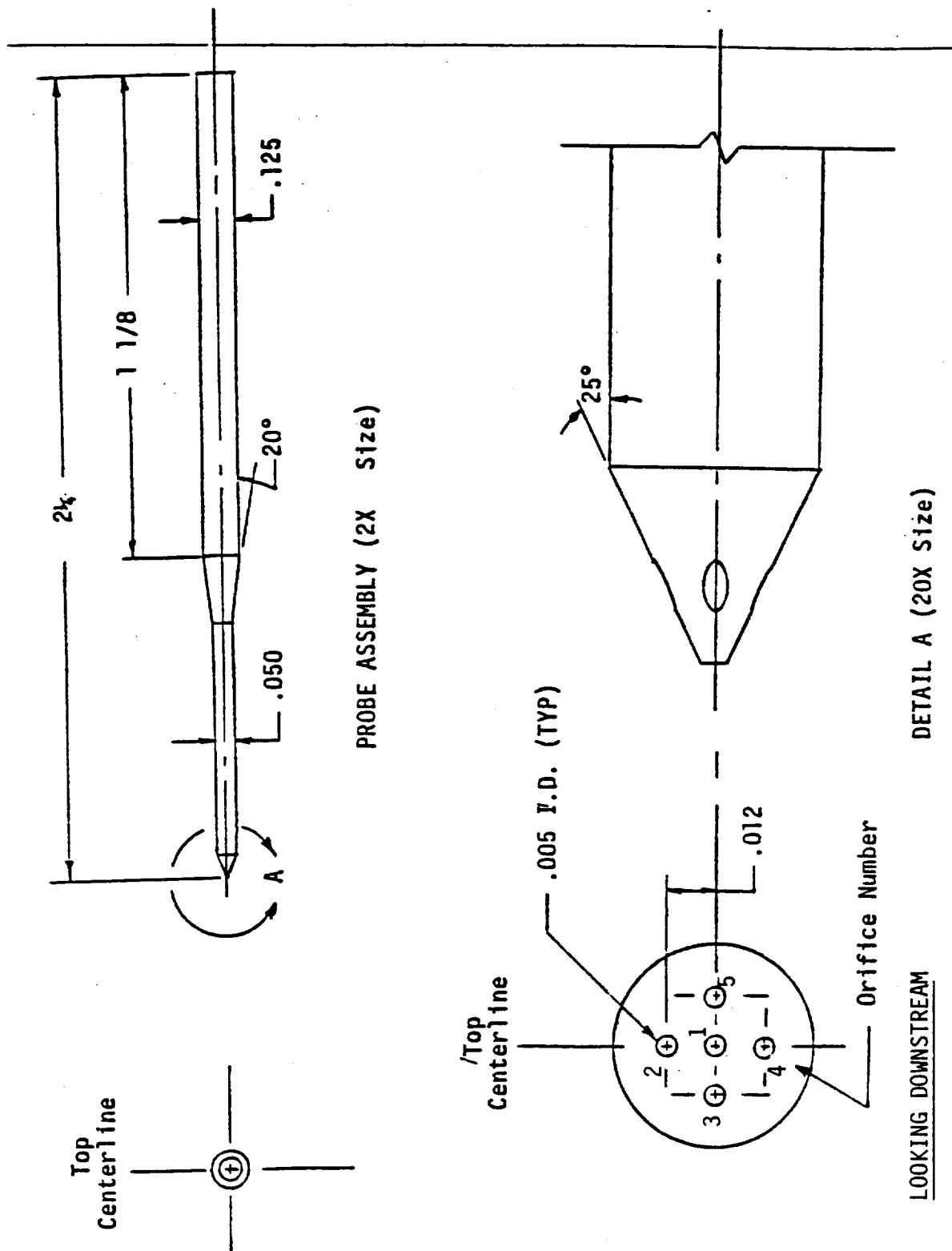


Figure 2. Model Sketches
j. Probe Details

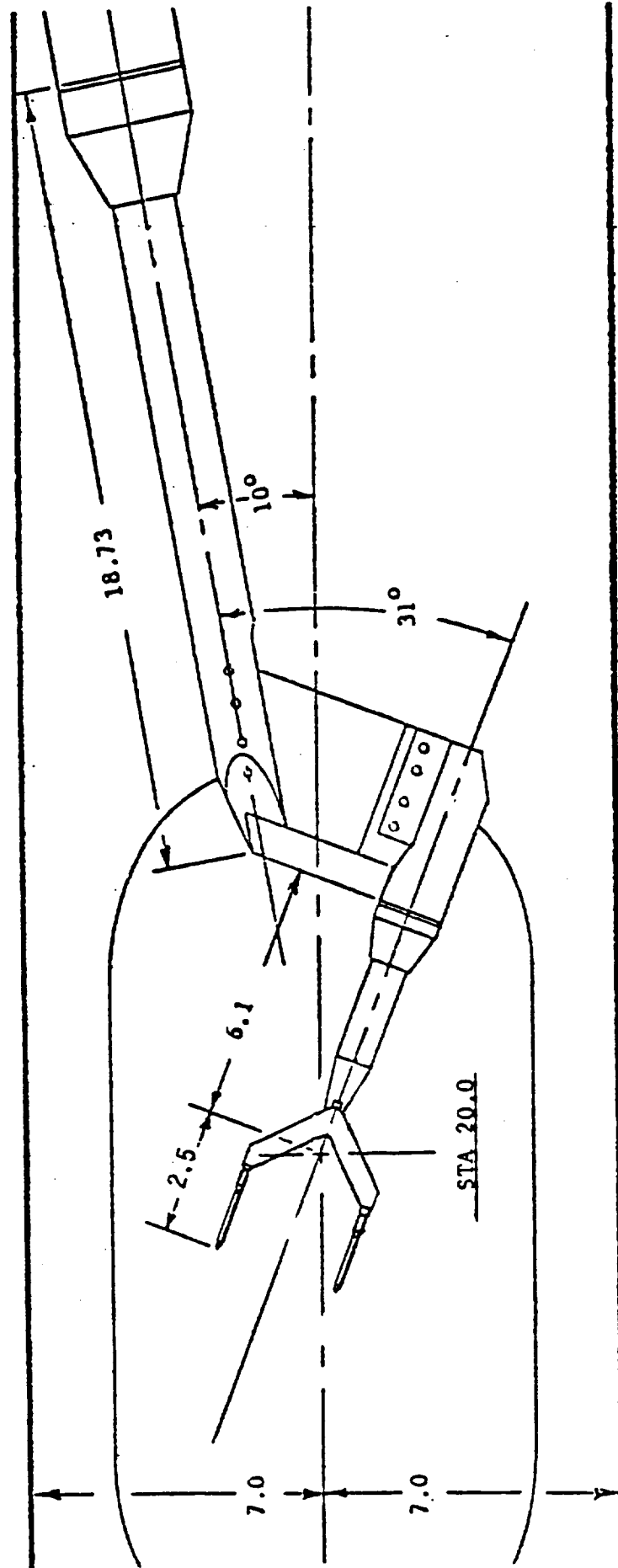


Figure 2. Model Sketches

K. Probe Calibration Installation in
MSFC 14' TWT

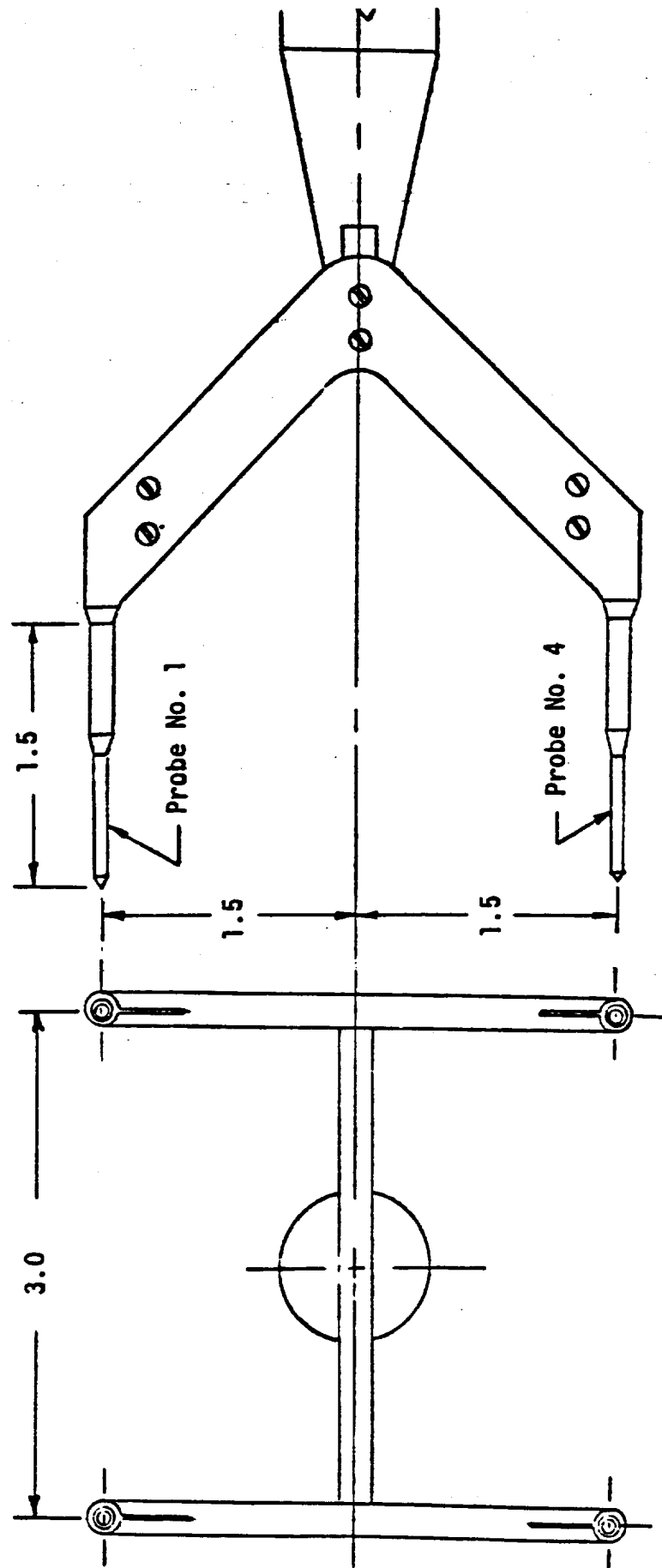


Figure 2. Model Sketches

1. Probe Calibration Fixture Details

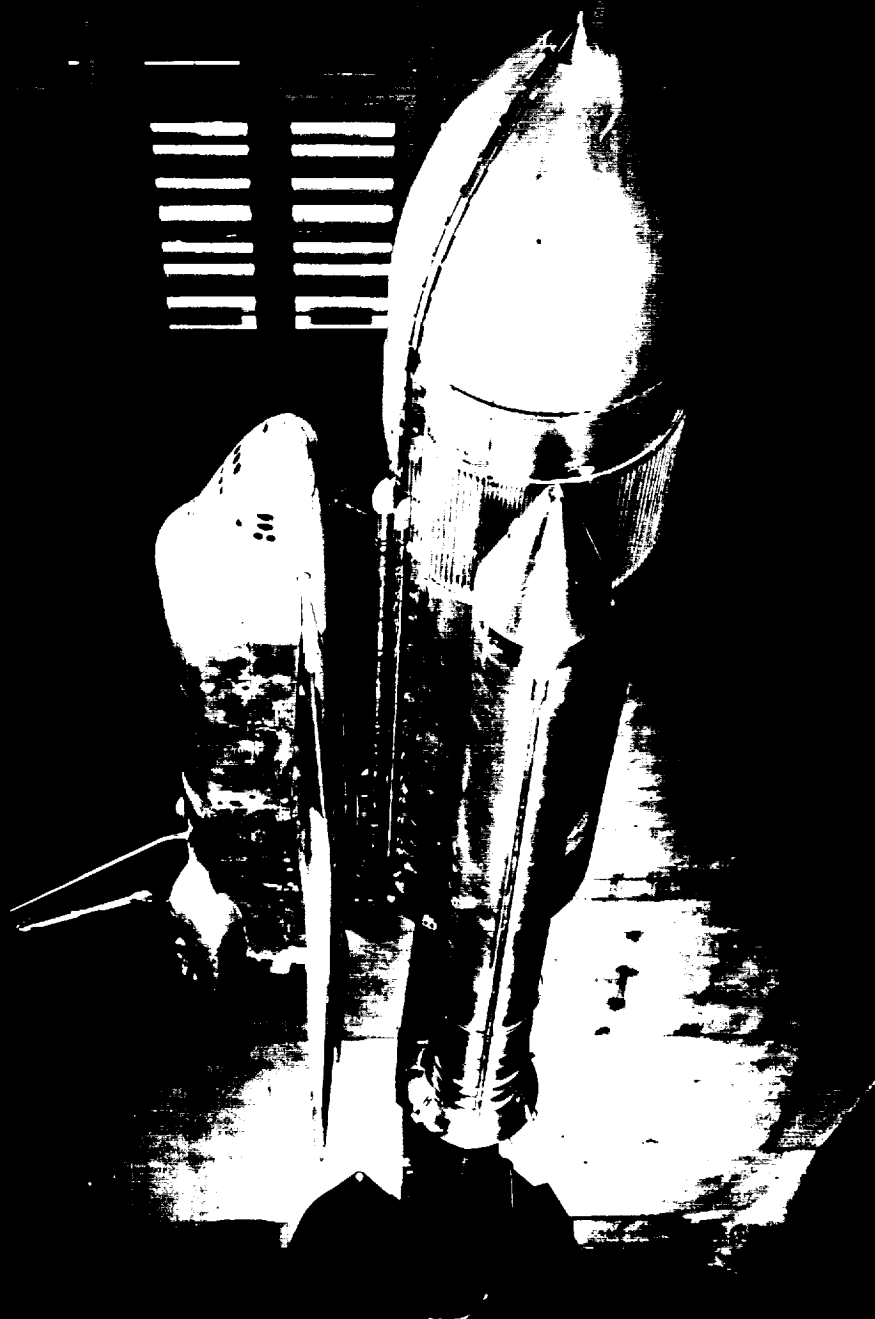


FIGURE 3 - MODEL PHOTOGRAPHS
a. Model 47-OTS in the NASA/ARC 11x11
foot tunnel front quarter view

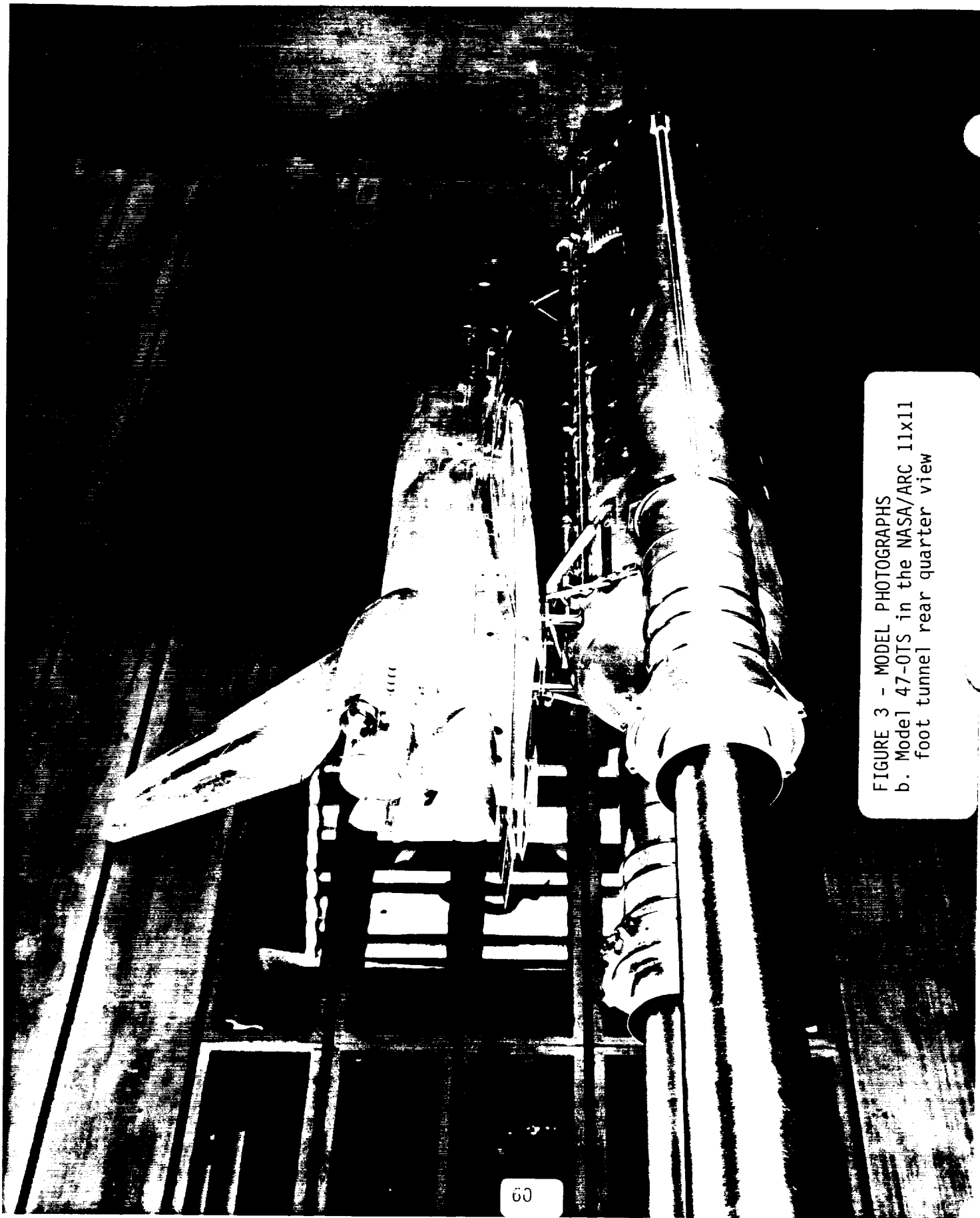


FIGURE 3 - MODEL PHOTOGRAPHS
b. Model 47-OTS in the NASA/ARC 11x11
foot tunnel rear quarter view



FIGURE 3 - MODEL PHOTOGRAPHS
c. Model 47-OTS in the NASA/ARC 11x11
foot tunnel rear quarter view
showing sting details



FIGURE 3 - MODEL PHOTOGRAPHS
d. Model 47-OTS detail showing
traversing probe carrier details
and pressure instrumented protuber-
ances



FIGURE 3 - MODEL PHOTOGRAPHS
e. Model 47-OTS - Closeup of probe
carrier



FIGURE 3 - MODEL PHOTOGRAPHS
f. Model 47-OTS - Closeup of Rear
Attach Structure



FIGURE 3 - MODEL PHOTOGRAPHS
g. Model 47-OTS - Rear Attach
Structure Details

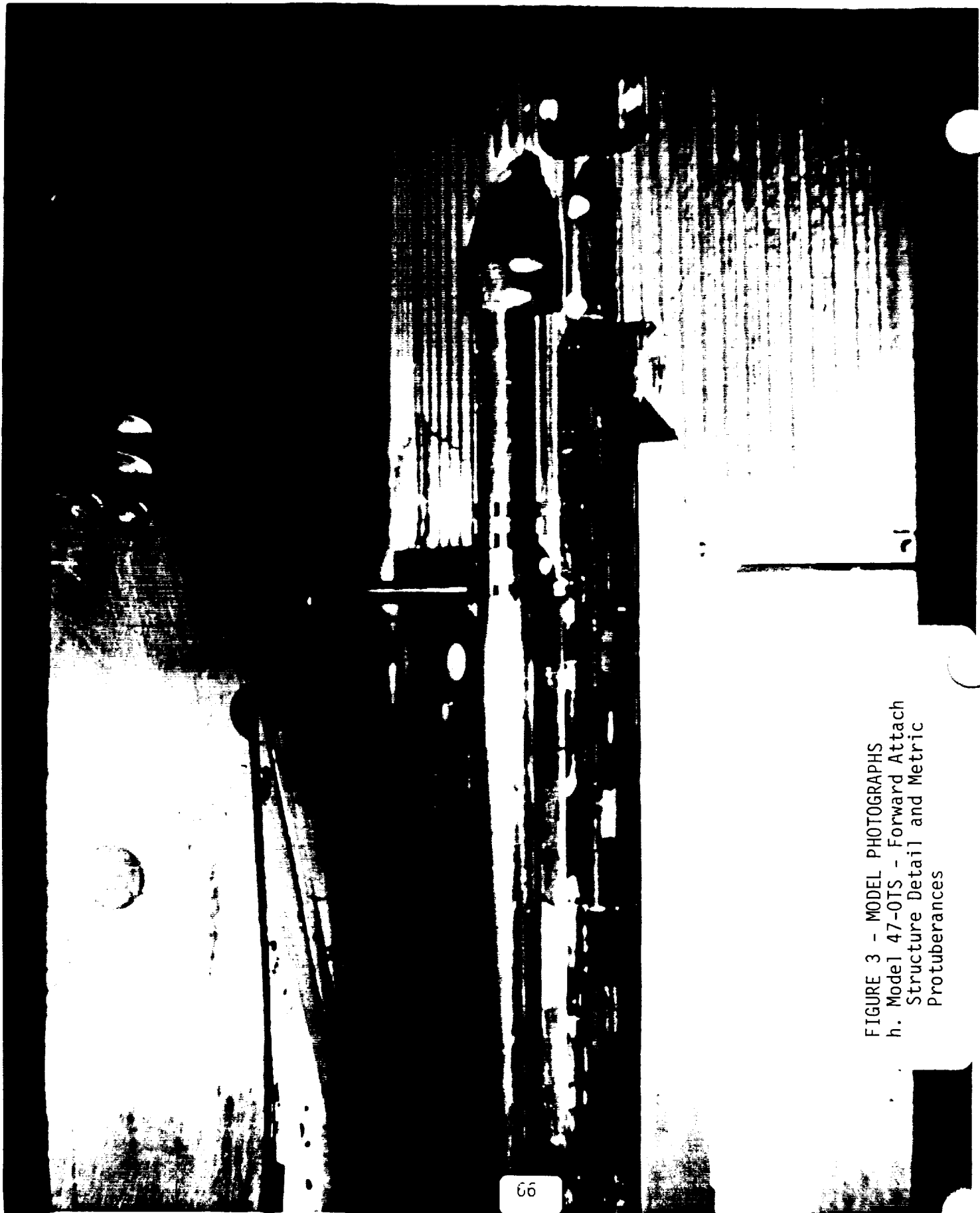


FIGURE 3 - MODEL PHOTOGRAPHS
h. Model 47-OTS - Forward Attach
Structure Detail and Metric
Protuberances



FIGURE 3 - MODEL PHOTOGRAPHS
i. Model 47-OTS - Forward Attach
Structure Detail and Pressure
Instrumented Protuberances

FIGURE 3 - MODEL PHOTOGRAPHS
j. Model 47-0TS - Orobe Traversing
Mechanism



FIGURE 3 - MODEL PHOTOGRAPHS
k. Model 47-OTS - Protuberance
Balances in their Carrying Case
with Metric Protuberances Attached



FIGURE 3 - MODEL PHOTOGRAPHS
1. Oil Flow Baseline Picture

927

FIGURE 3 - MODEL PHOTOGRAPHS
m. Oil Flow - $\alpha = -40^\circ$, $\beta = 0^\circ$, $M = 1.25$

66-1 $M = 1.25$ $\alpha = -4$ $\beta = 0$

FIGURE 3 - MODEL PHOTOGRAPHS
n. Oil Flow - $\alpha = 40^\circ$, $\beta = 0$, $M = 1.25$

66-3 M=1.25 $\alpha=4$ B

229

825

FIGURE 3. - MODEL PHOTOGRAPHS
o. Oil Flow - $\alpha = 0$, $\beta = -40^\circ$, $M = 1.25$

65-2 M=1.25 $\alpha=0$ $\beta=-4$

FIGURE 3 - MODEL PHOTOGRAPHS

P. Oil Flow - $\alpha = 0$, $\beta = +4$, $M = 1.25$

67-2 M=1.25 $\alpha=0$ $\beta=4$

R31

DATA FIGURES

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13JAD2 CONFIGURATION 1A190A, LO2 TK CBL TRY + G02 PRESS LN, RAMPS ON

BETA PARAMETRIC VALUES
 -4.000 MACH .600
 4.000 1B-ELV 10.000
 4.000 0B-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XTRP .0000 IN. XT
 YTRP .0000 IN. YT
 ZTRP .0000 IN. ZT
 SCALE .0300

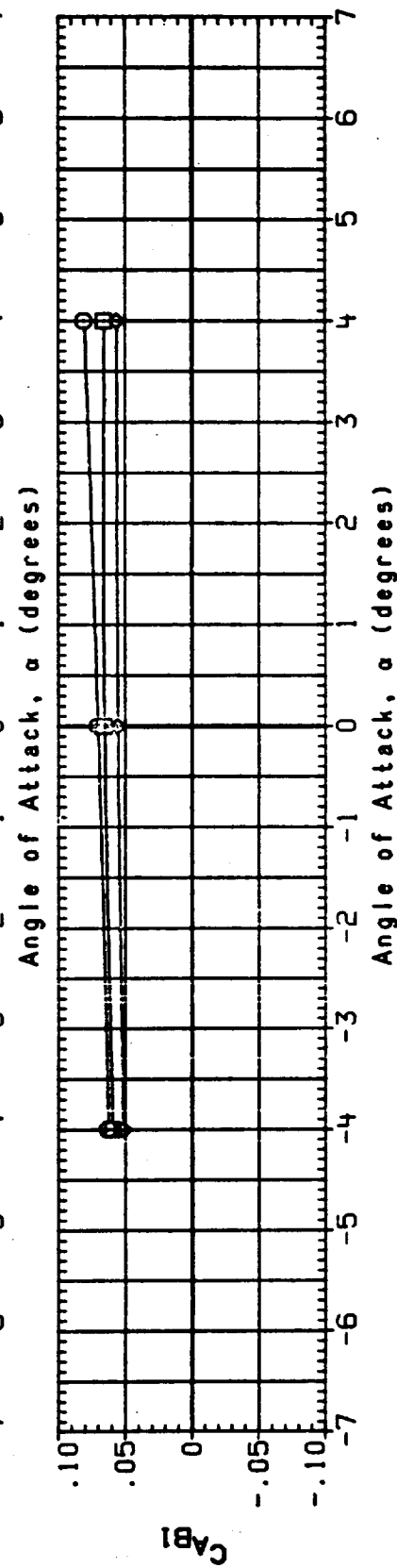
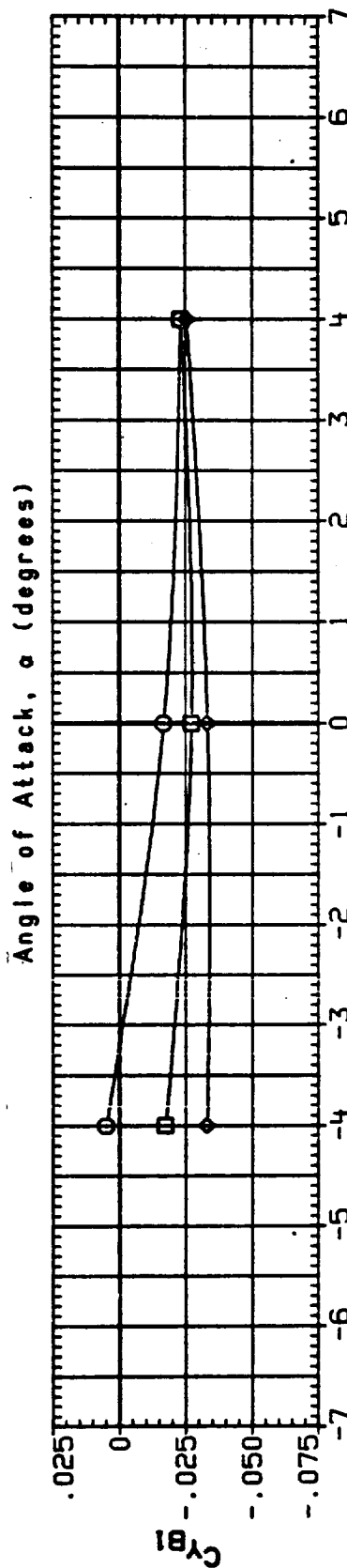
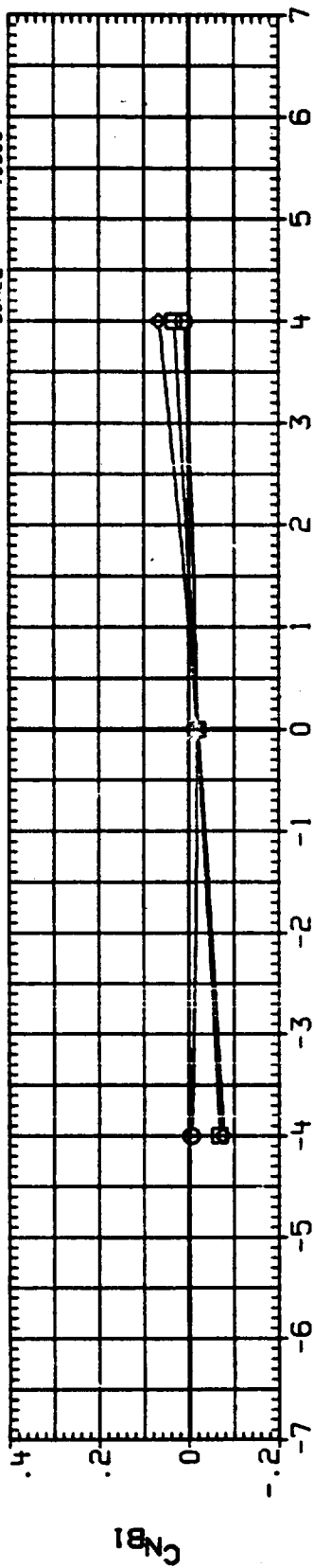


FIGURE 4. AERODYNAMIC FORCES ON THE LO2 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS ON

131A03 CONFIGURATION 1A190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

SYMBOL \diamond \square \circ

PARAMETRIC VALUES	
BETA	MACH
-4.000	9.000
4.000	10.000
08-ELV	9.000

REFERENCE INFORMATION

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LREF	.0000	INCHES
BREF	.0000	INCHES
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YMRP	.0000	IN. YT
ZMRP	.0000	IN. ZT
SCALE	.0300	

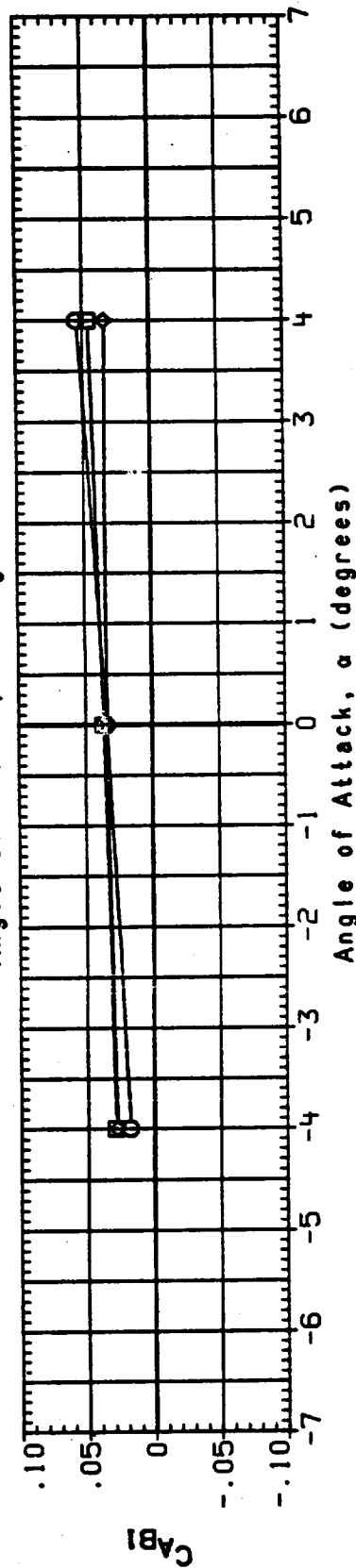
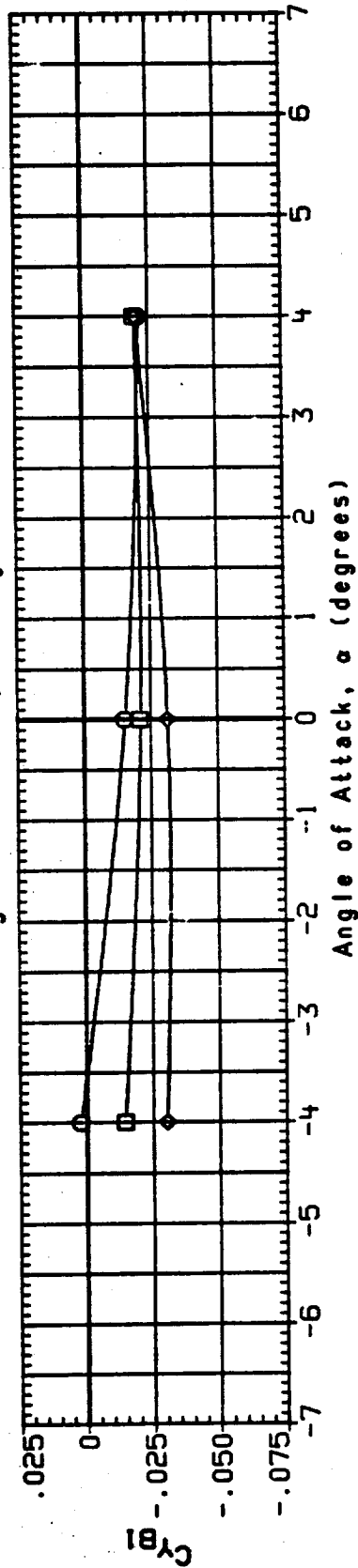
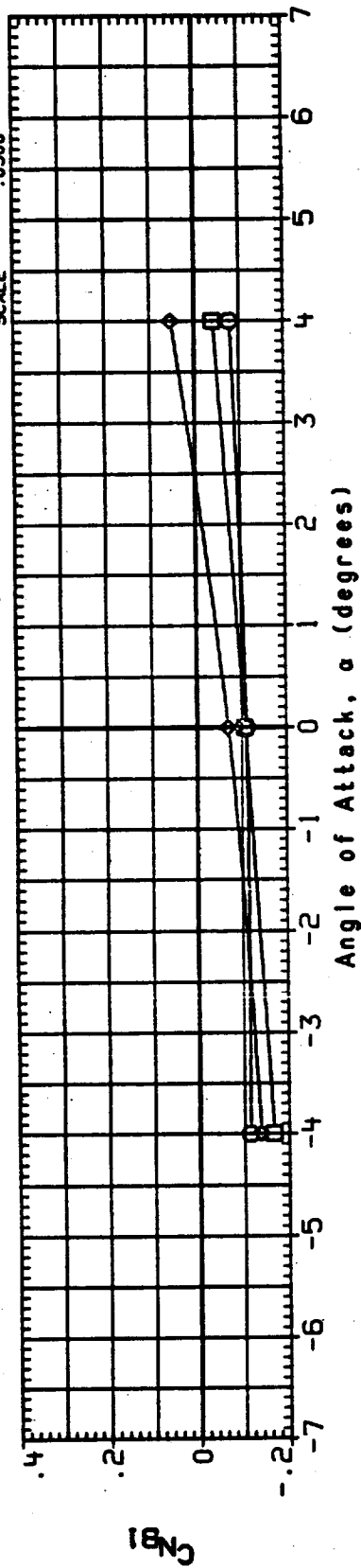


FIGURE 4. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS ON

CONFIGURATION 1A190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

ISJADN
SYMBOL

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH 1.100
18-ELV 10.000
08-ELV 9.000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

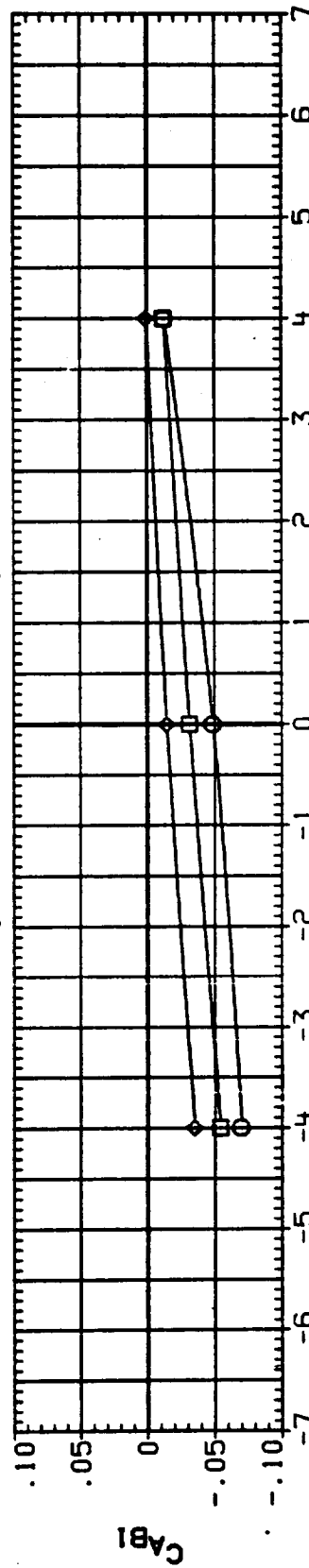
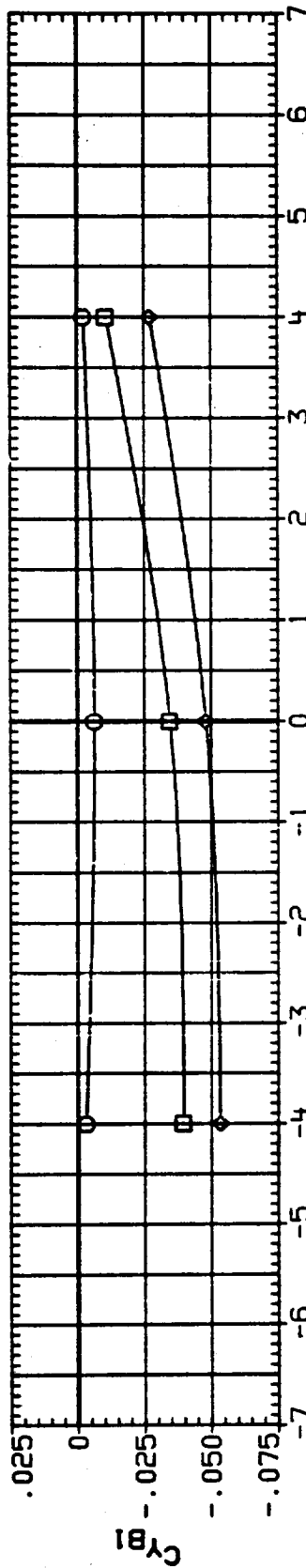
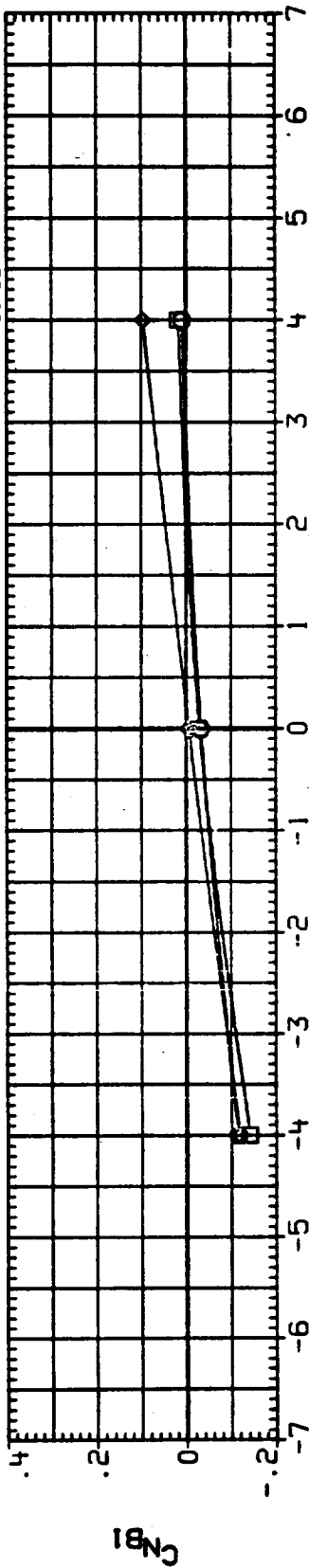


FIGURE 4. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS ON

CONFIGURATION 1A180A, LO2 TK CBL TRY + G02 PRESS LN, RAMPS ON

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH 1.250
IB-ELV 10.000
OB-ELV .000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

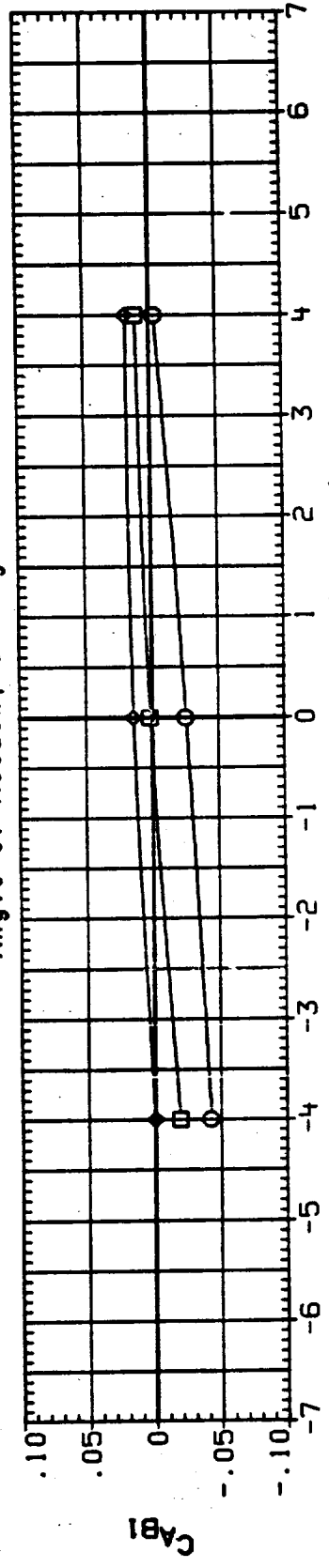
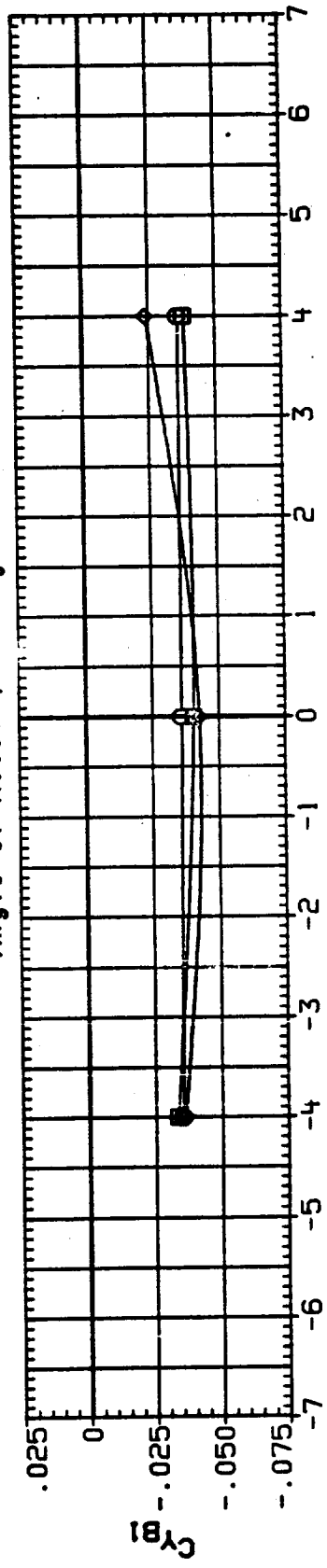
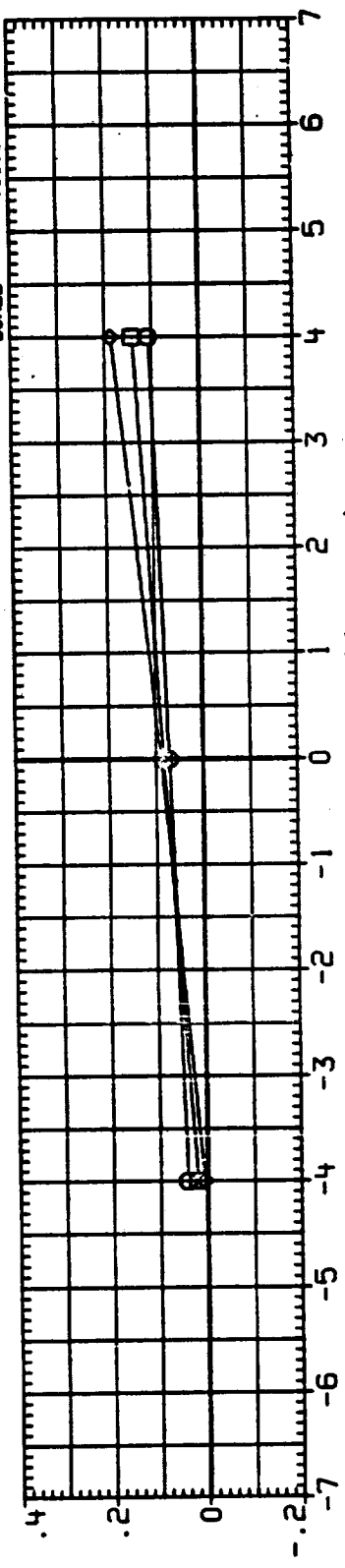


FIGURE 4. AERODYNAMIC FORCES ON THE LO2 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS ON

13J406 CONFIGURATION 1A190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 .000 IB-ELV 10.000
 4.000 OB-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
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 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

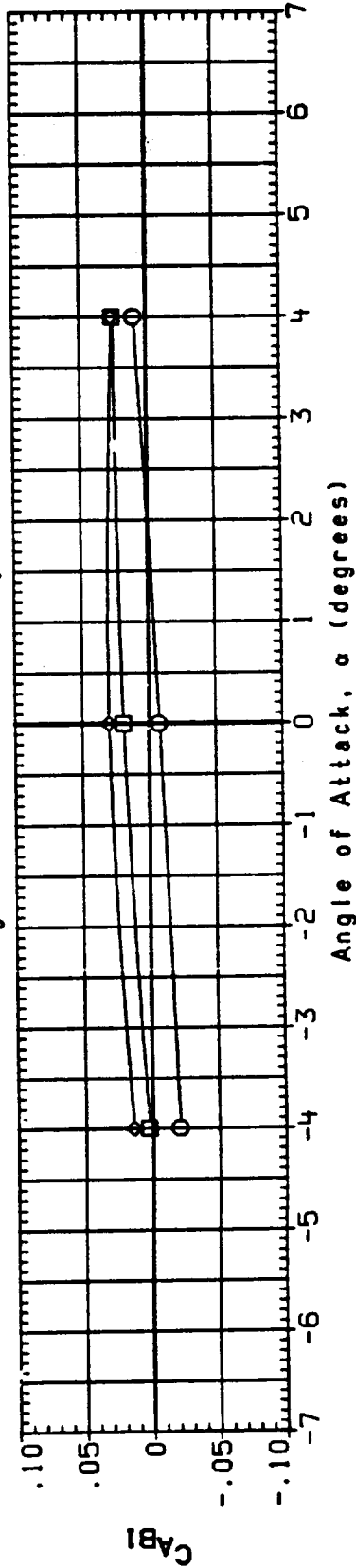
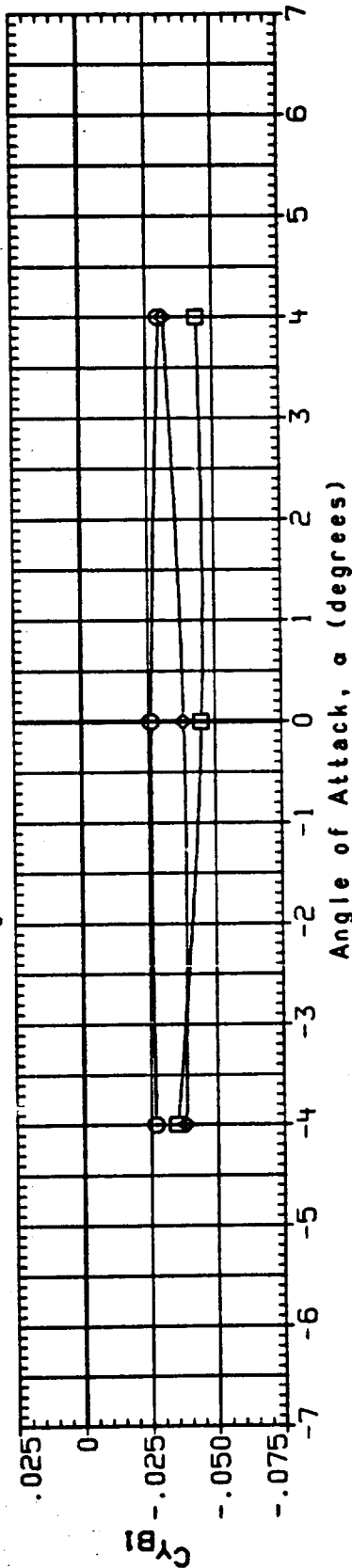
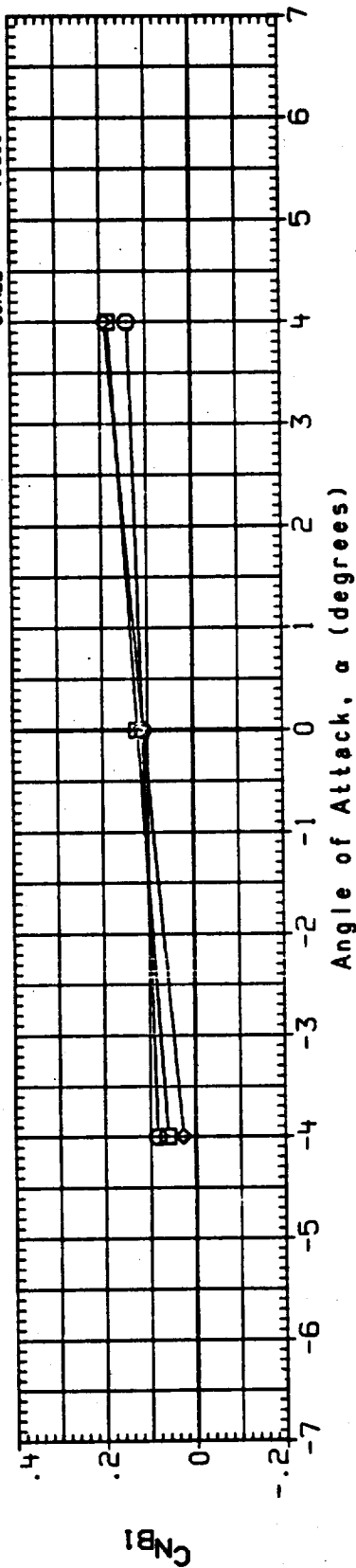


FIGURE 4. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS ON

13VA43 CONFIGURATION 1A1808,LO2 TANK CBL TRY + G02 PRESS LN, RAMPS ON

BETA PARAMETRIC VALUES
 -6.000 MACH 1.550
 -4.000 Q(PSF) 600.000
 .000 IB-ELV 8.000
 4.000 OB-ELV -5.000
 6.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN
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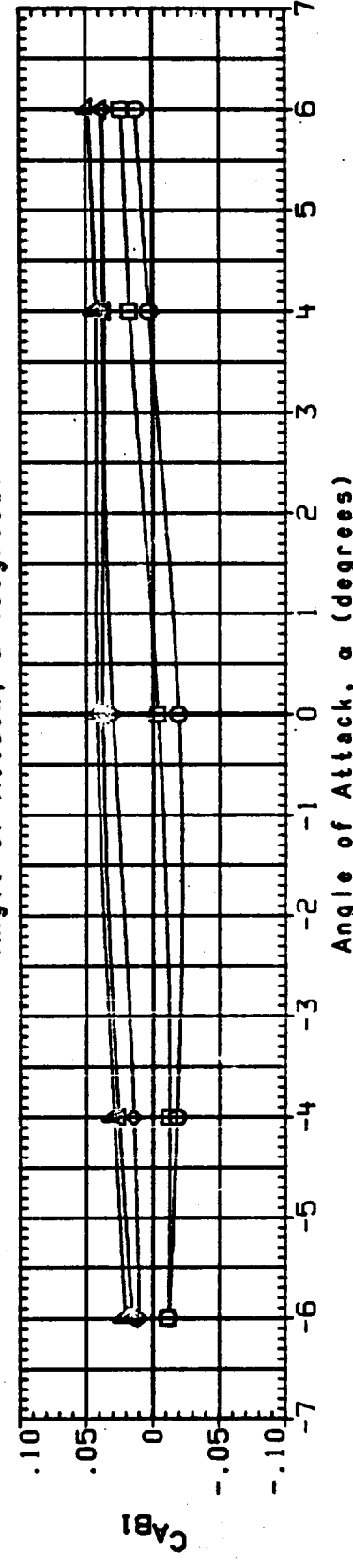
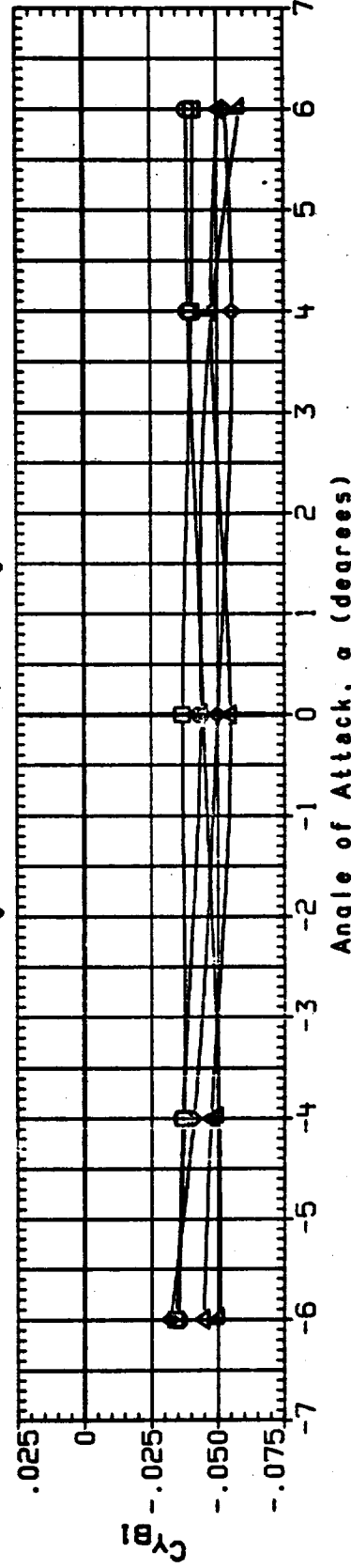
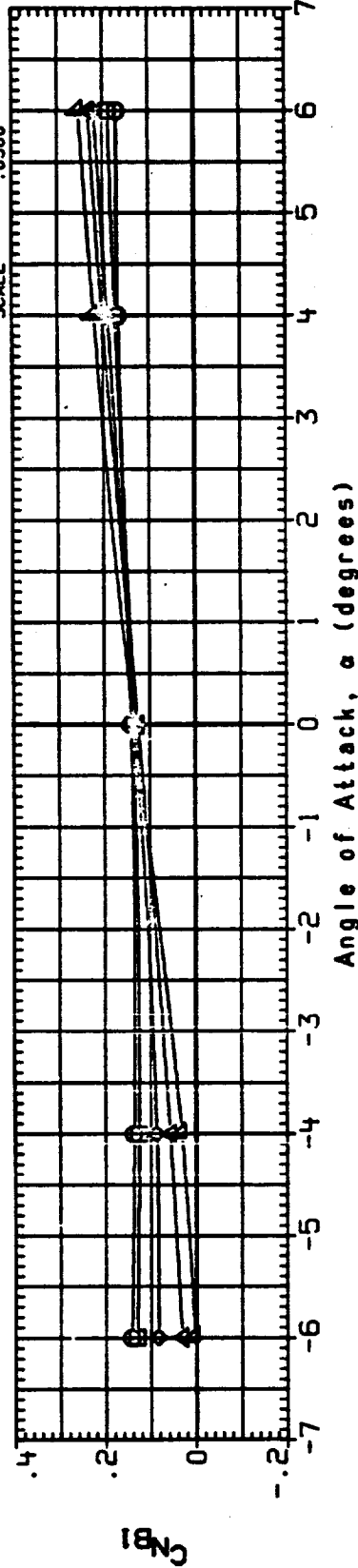


FIGURE 4. AERODYNAMIC FORCES ON THE LO2 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS ON

13V444	CONFIGURATION	1A190B, L02 TANK CBL TRY + G02 PRESS LN, RAMPS ON	REFERENCE INFORMATION
SYMBOL	BETA	PARAMETRIC VALUES	SREF .0171 SQ. IN
□	-6.000	MACH 2.000	LREF .0000 INCHES
◇	-4.000	Q(PSF) 600.000	BREF .0000 INCHES
△	.000	18-ELV 8.000	XPRP .0000 IN. XT
○	4.000	08-ELV -5.000	YPRP .0000 IN. YT
	6.000		ZPRP .0000 IN. ZT
			SCALE .0300

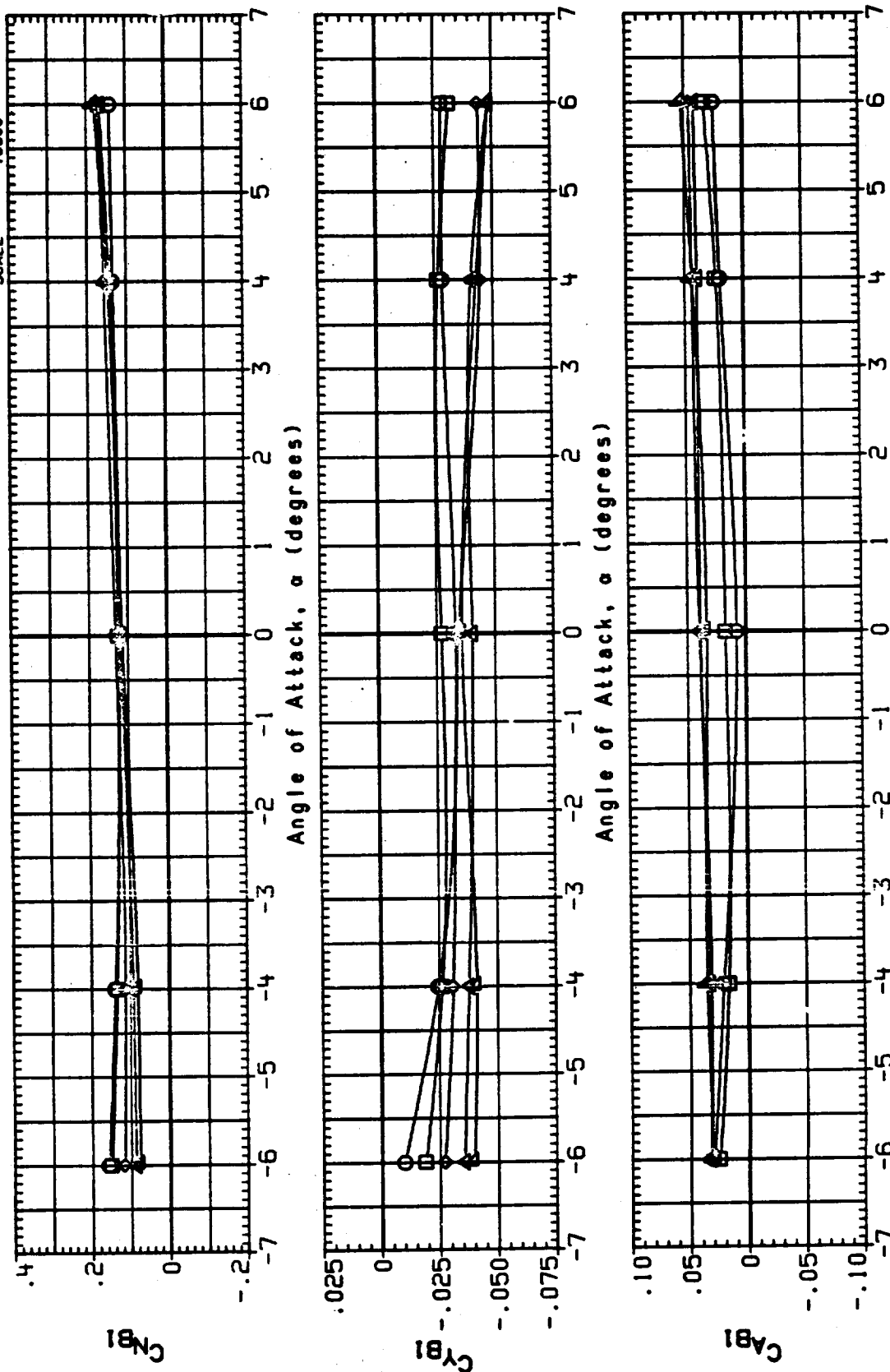


FIGURE 4. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS ON

13VAVS CONFIGURATION 1A1908,LO2 TNK CBL TRY + G02 PRESS LN, RAMPS ON

SYMBOL	BETA	PARAMETRIC VALUES
◇	-8.000	MACH 2.500
○	-4.000	Q(PSF) 600.000
△	.000	18-ELV 8.000
▽	4.000	08-ELV -5.000
◇	6.000	

REFERENCE INFORMATION

SREF	.0171	SQ. IN
LREF	.0000	INCHES
BREF	.0000	INCHES
XTRP	.0000	IN. XT
YTRP	.0000	IN. YT
ZTRP	.0000	IN. ZT
SCALE	.0300	

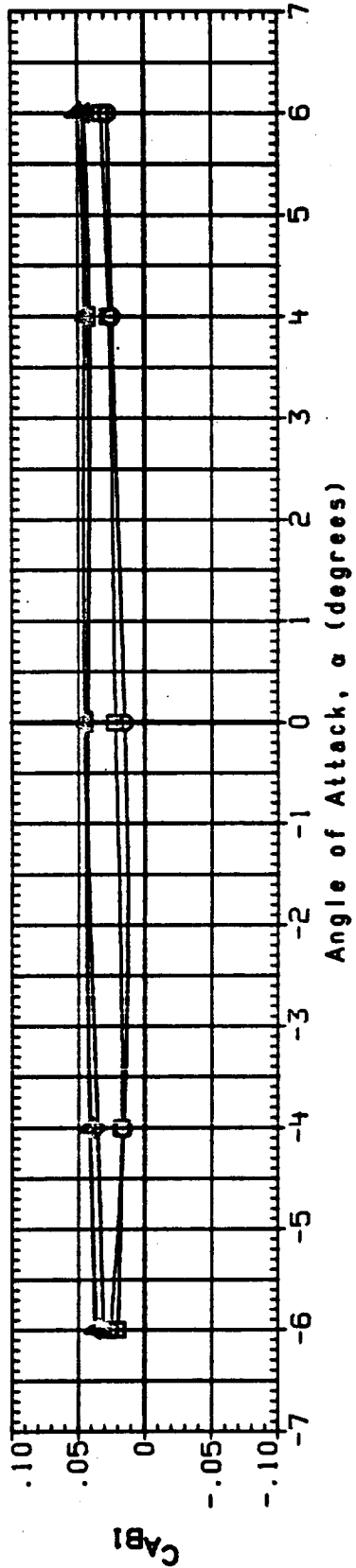
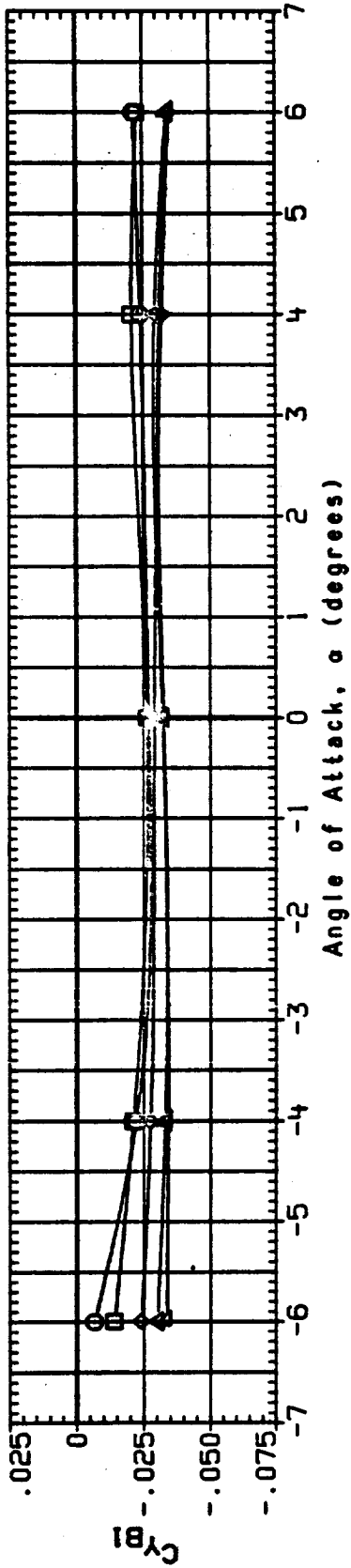
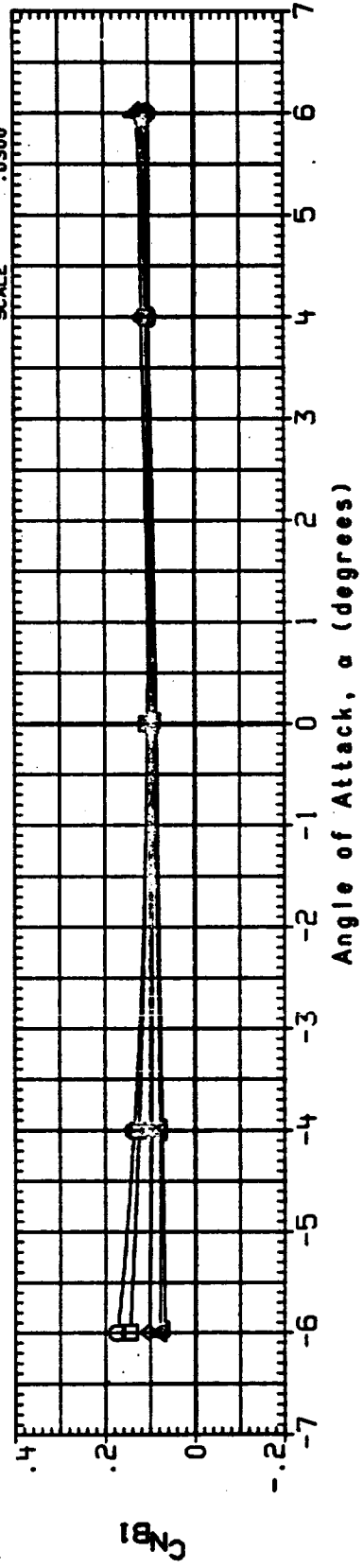


FIGURE 4. AERODYNAMIC FORCES ON THE LO2 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS ON

13JA07 CONFIGURATION 1A190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF

BETA PARAMETRIC VALUES
 -4.000 MACH .600
 .000 1B-ELV 10.000
 4.000 0B-ELV 9.000

REFERENCE INFORMATION
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 LREF .0000 INCHES
 BREF .0000 INCHES
 XTRP .0000 IN. XT
 YTRP .0000 IN. YT
 ZTRP .0000 IN. ZT
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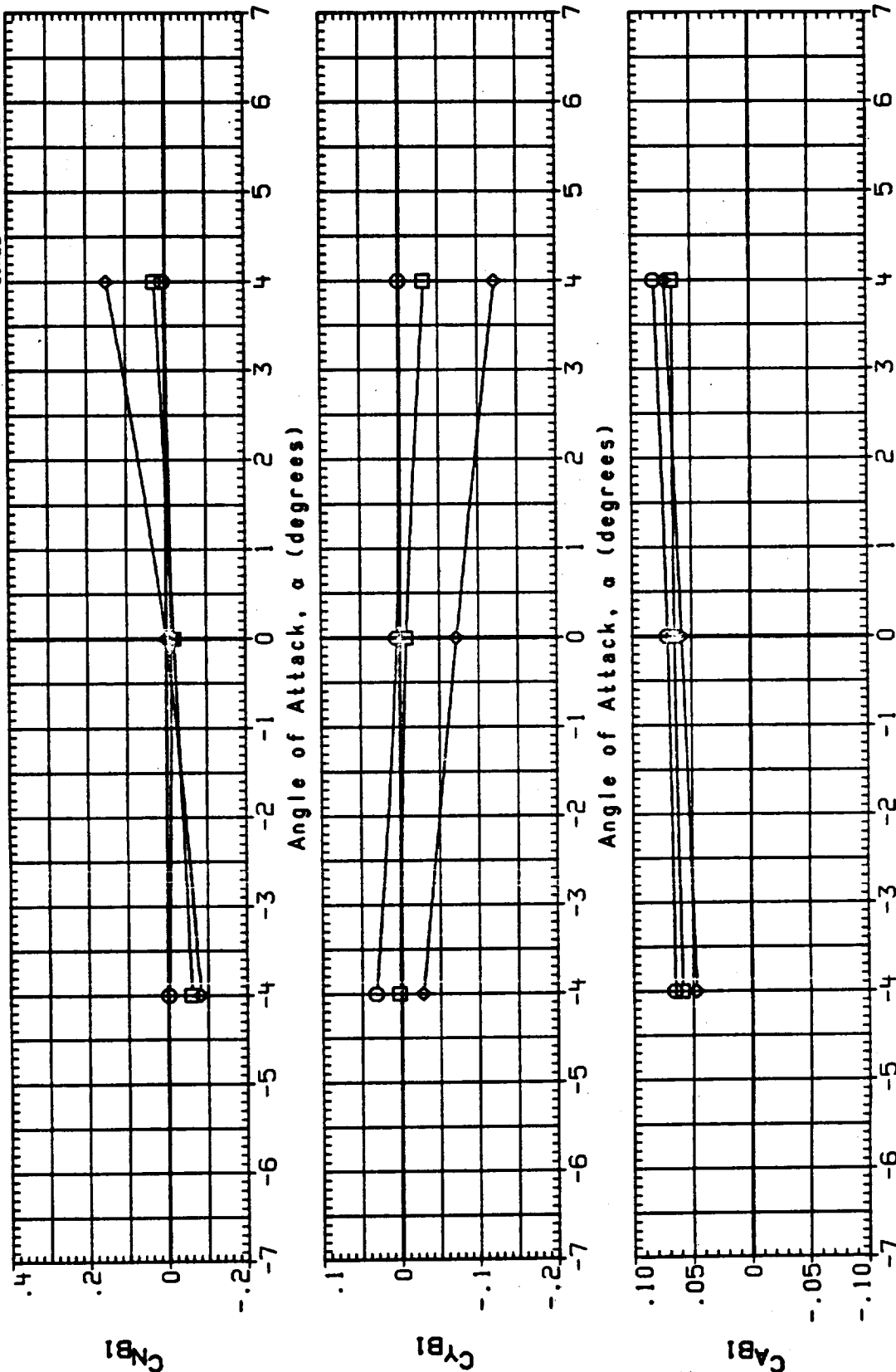


FIGURE 5. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS OFF

13JA08
SYMBOL

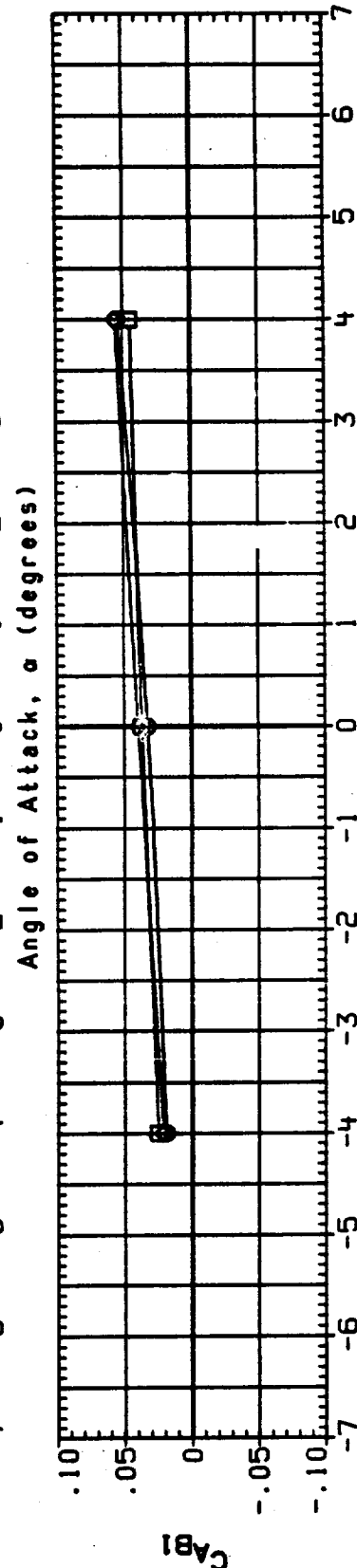
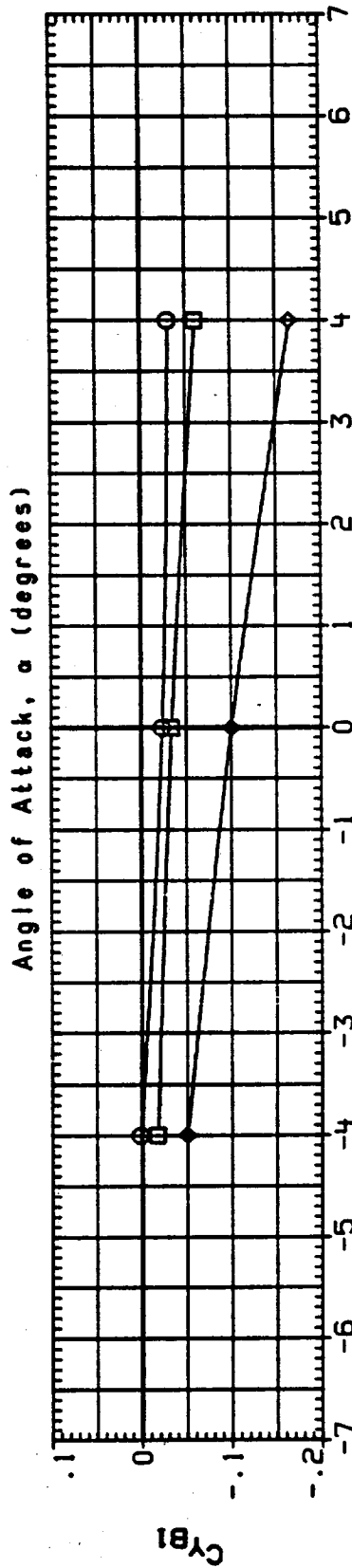
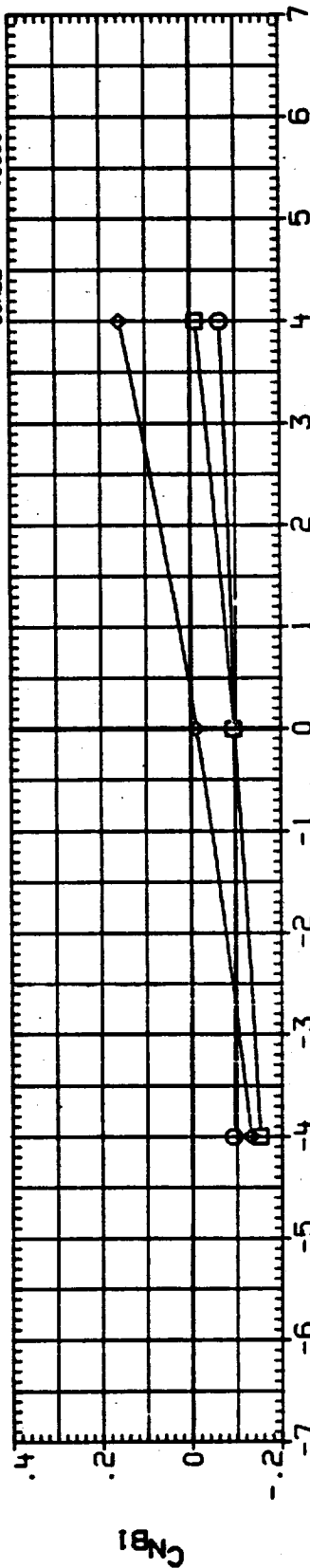
CONFIGURATION 1A190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF

BETA
-4.000
4.000

PARAHETRIC VALUES
MACH .900
IB-ELV 10.000
OB-ELV 9.000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XRRP .0000 IN. XT
YRRP .0000 IN. YT
ZRRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)

FIGURE 5. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS OFF

13JAO9 CONFIGURATION 1A190A, LO2 TK CBL TRY + G02 PRESS LN, RAMPS OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.100
 .000 1B-ELV 10.000
 4.000 OB-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

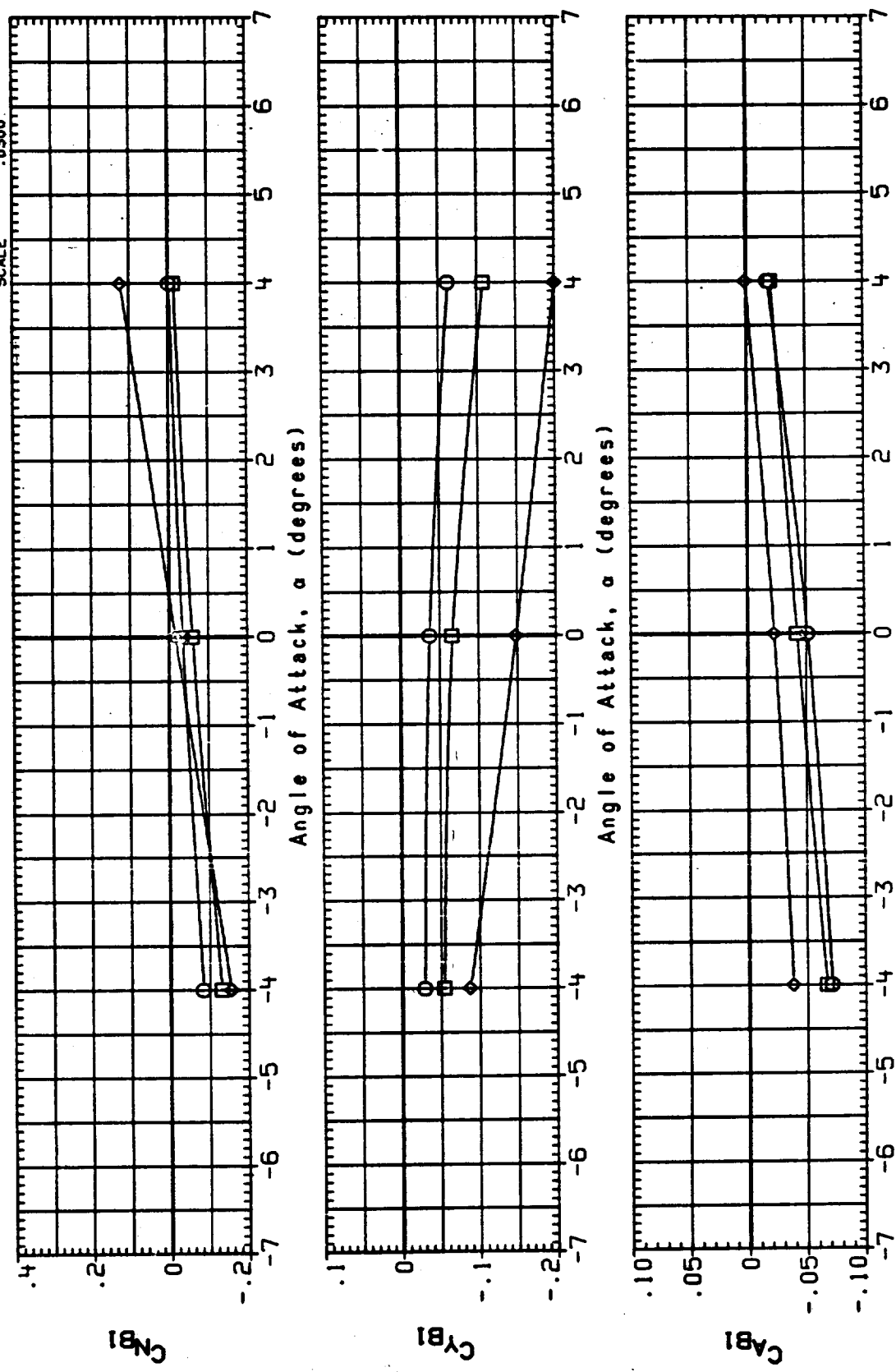


FIGURE 5. AERODYNAMIC FORCES ON THE LO2 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS OFF

13J10
SYMBOL

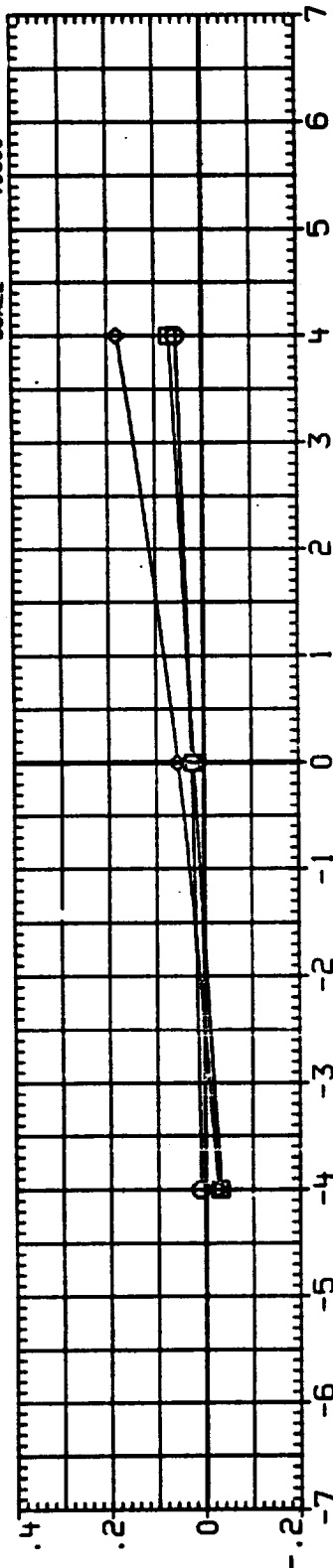
CONFIGURATION 1A190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF

BETA
-4.000
4.000

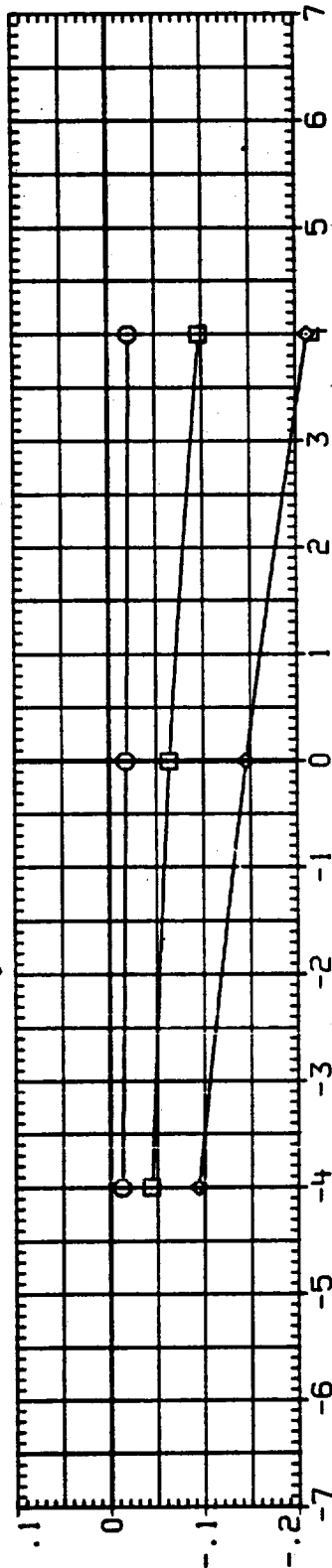
PARAMETRIC VALUES
MACH 1.250
IB-ELV 10.000
OB-ELV .000

REFERENCE INFORMATION

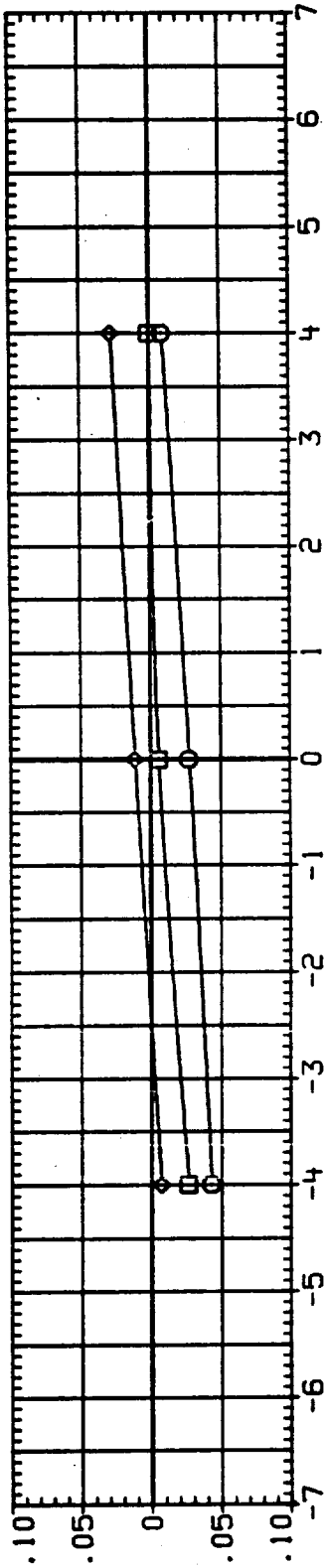
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LREF .0000 INCHES
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XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 5. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS OFF

13J111 CONFIGURATION 1A190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 .000 1B-ELV 10.000
 4.000 0B-ELV .000

REFERENCE INFORMATION
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 LREF .0000 INCHES
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 YMRP .0000 IN. YT
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 SCALE .0300

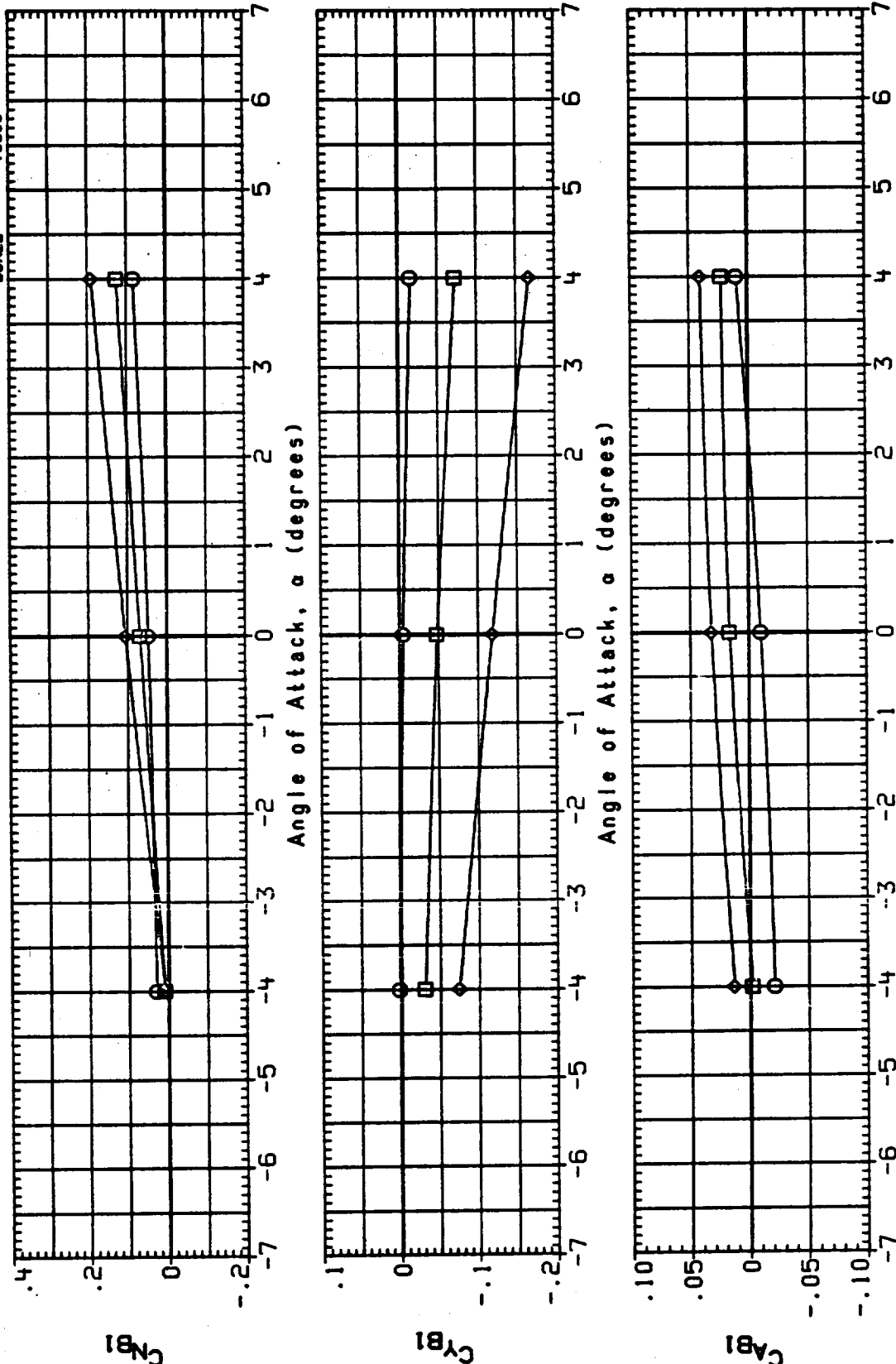


FIGURE 5. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS OFF

13VAH6 CONFIGURATION 1A1908, L02 TNK CBL TRY + 002 PRESS LN. RAMPS OFF

SYMBOL

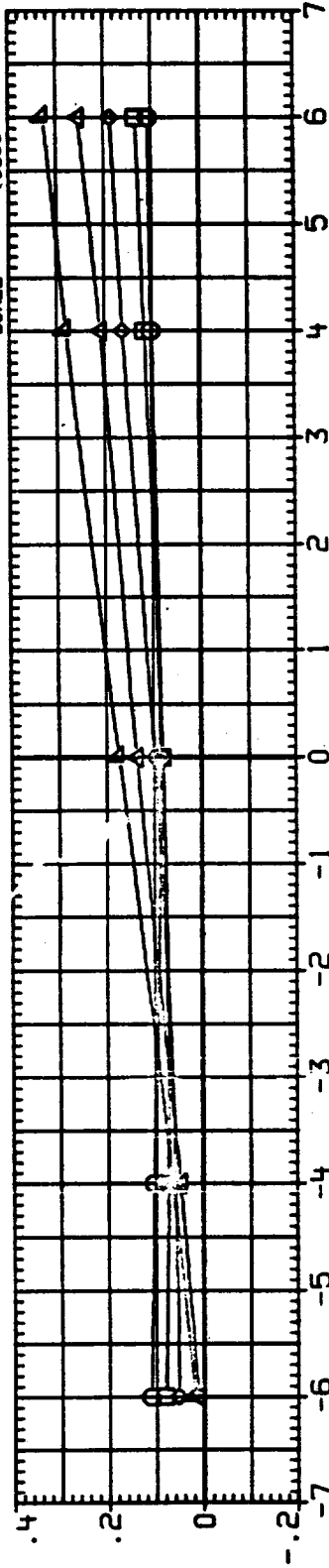
∇ \square \diamond \triangle

BETA
 -5.000
 -4.000
 .000
 4.000
 6.000

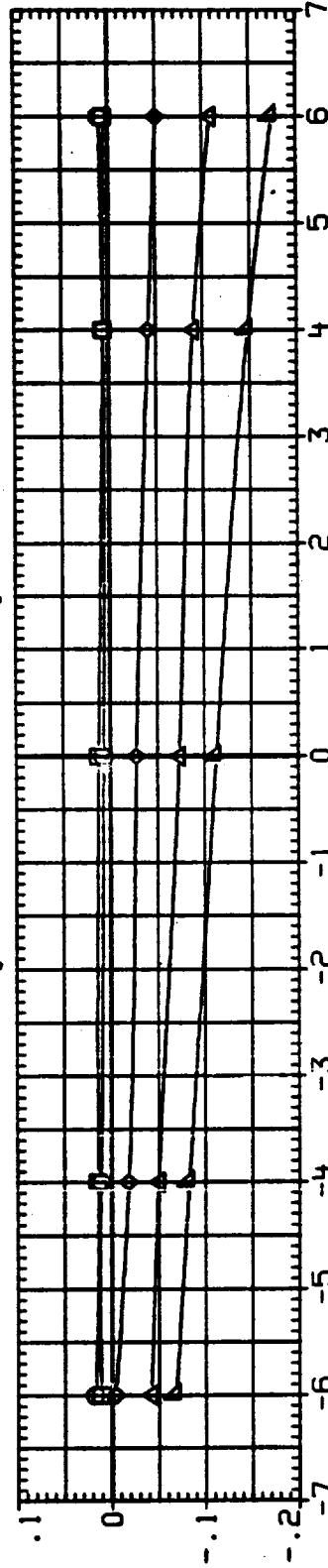
PARAMETRIC VALUES
 MACH 1.250
 Q(PSF) 600.000
 IB-ELV 8.000
 OB-ELV -5.000

REFERENCE INFORMATION

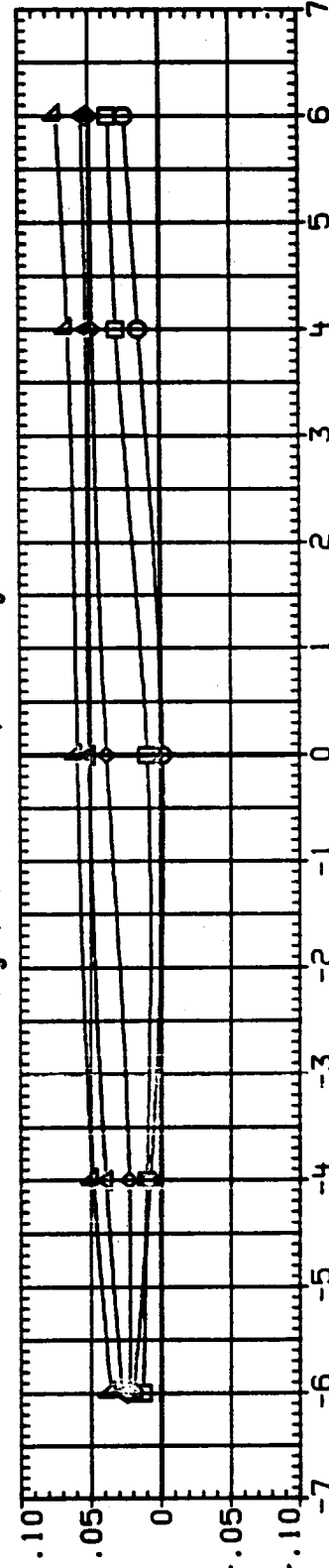
SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XTRP .0000 IN. XT
 YTRP .0000 IN. YT
 ZTRP .0000 IN. ZT
 SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 5. AERODYNAMIC FORCES ON THE L02 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS OFF

13VA47

SYMBOL

□

◇

△

CONFIGURATION 1A1908.L02 TANK CBL TRY + G02 PRESS LN, RAMPS OFF

BETA

-6.000

-4.000

4.000

6.000

PARAMETRIC VALUES

MACH 2.000

Q(PSF) 600.000

IB-ELV 8.000

OB-ELV -5.000

REFERENCE INFORMATION

SREF .0171 SQ. IN

LREF .0000 INCHES

BREF .0000 INCHES

XMRP .0000 IN. XT

YMRP .0000 IN. YT

ZMRP .0000 IN. ZT

SCALE .0300

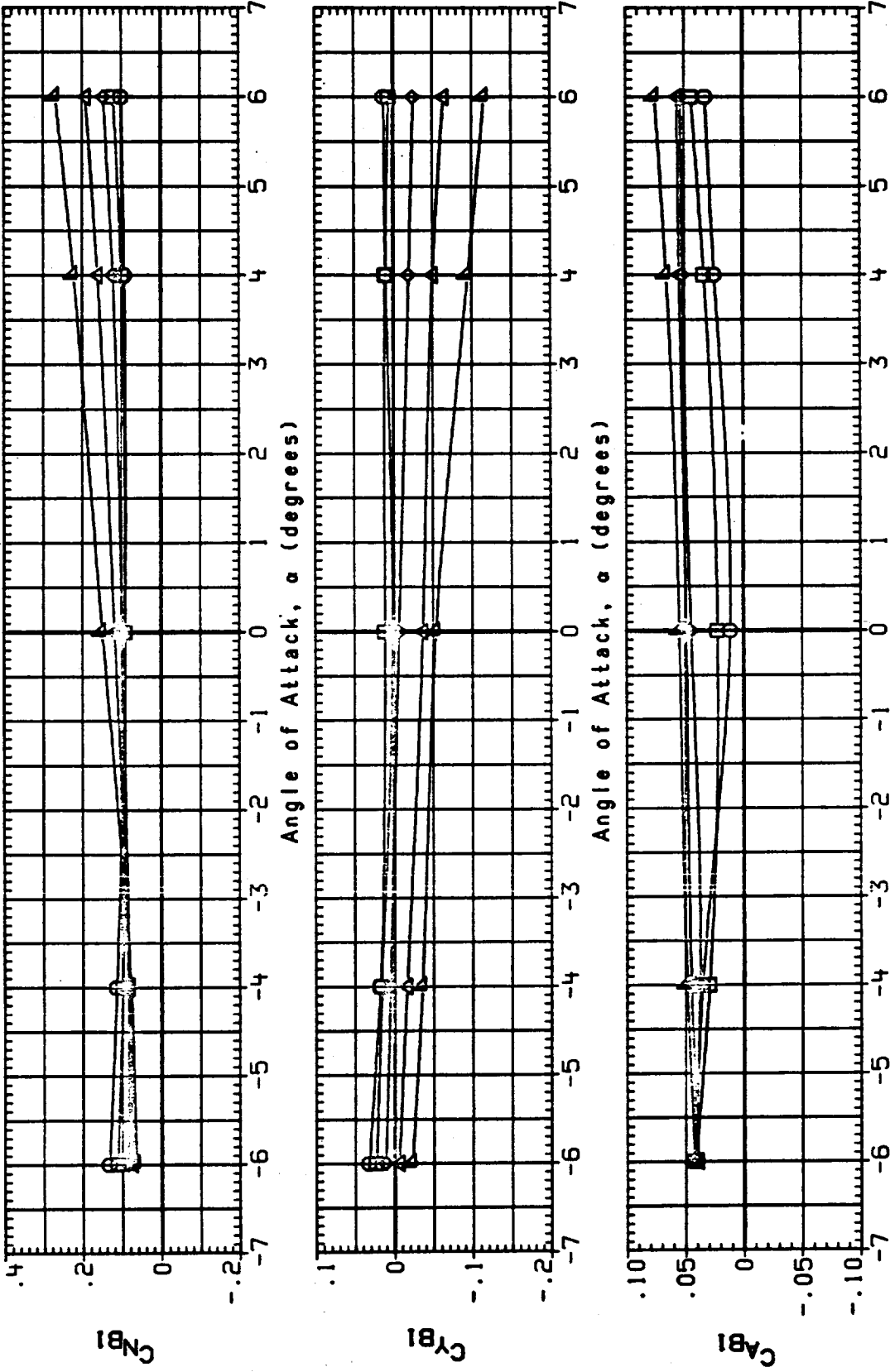


FIGURE 5. AERODYNAMIC FORCES ON THE LO2 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS OFF

SYMBOL	!3VA48
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[illegible]

Model	Q (PSF)	Q (PSF)
A73-80	2.500	2.500
A73-81	600.000	600.000
IB-ELV	8.000	8.000
OB-ELV	-5.000	-5.000

REFERENCE INFORMATION

SREF	.0171	SQ. IN
LREF	.0000	INCHES
BREF	.0000	INCHES
XRRP	.0000	IN. XT
YRRP	.0000	IN. YT
ZRRP	.0000	IN. ZT
SCALE	.0300	

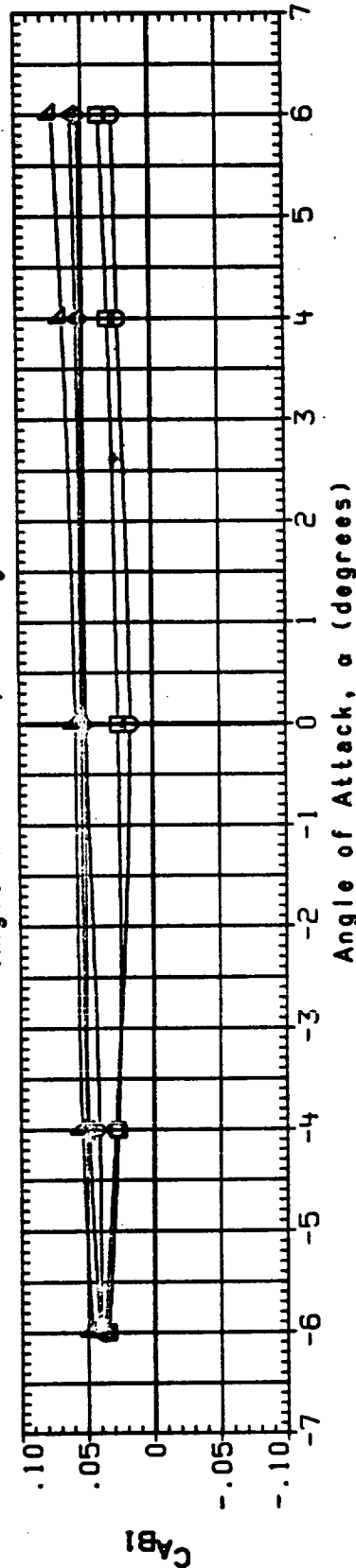
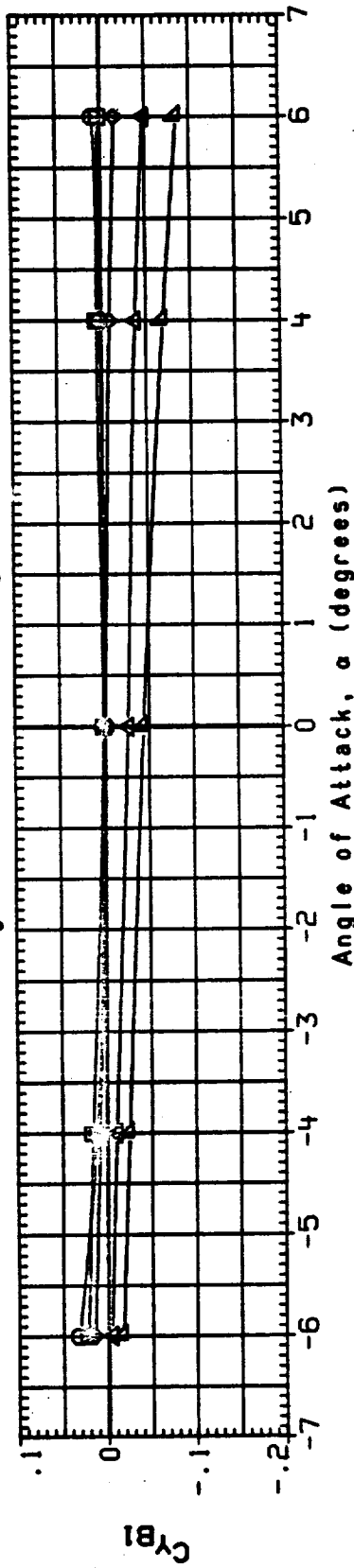
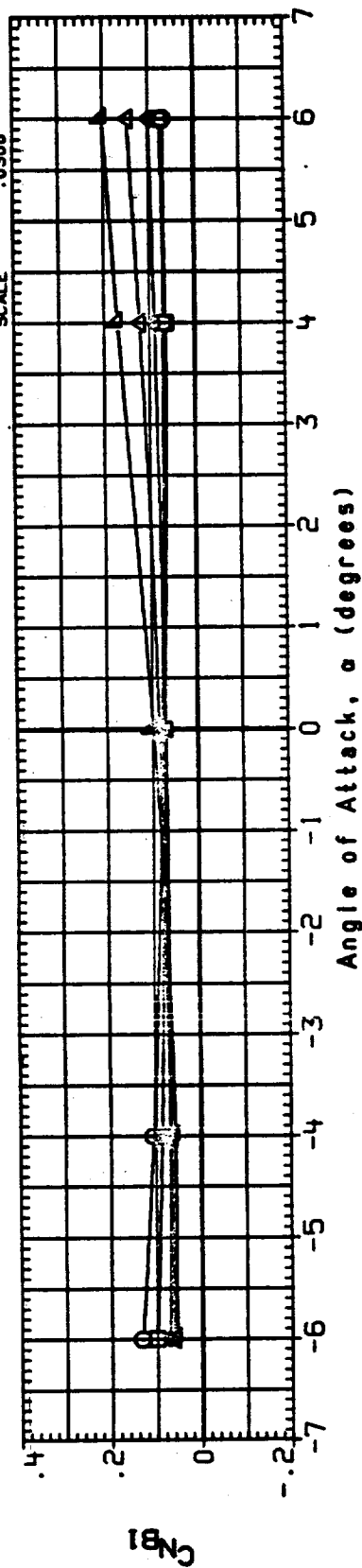


FIGURE 5. AERODYNAMIC FORCES ON THE LO2 TANK CABLE TRAY AND G02 PRESSURE LINES COMBINED, XT = 760.0 TO 895.0, RAMPS OFF

130602 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP ON

BETA PARAMETRIC VALUES
 -4.000 MACH .600
 .000 18-ELV 10.000
 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

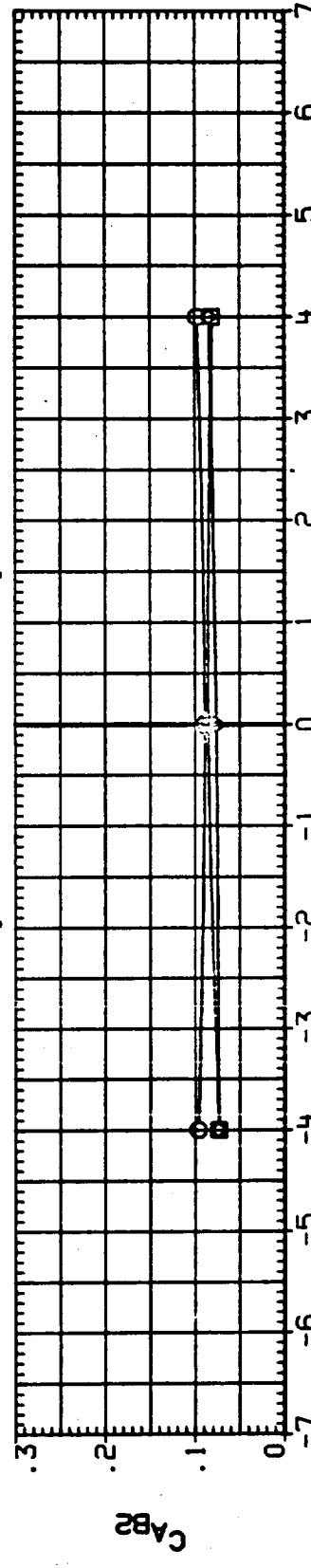
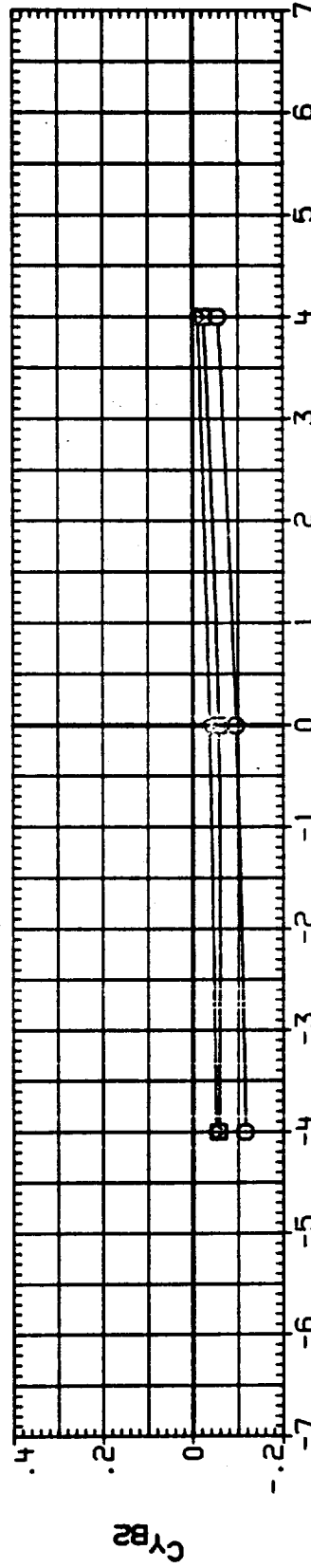
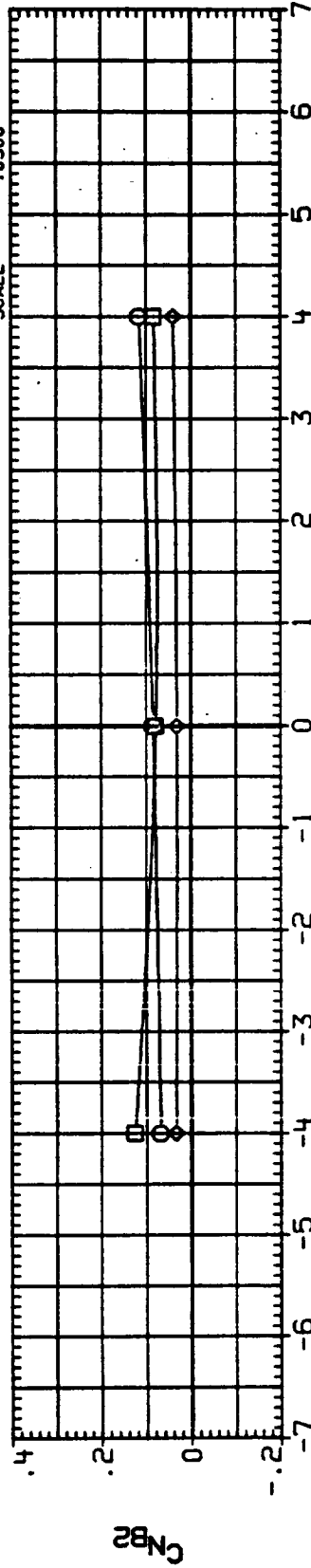


FIGURE 6. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS ON

13UB03 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

BETA PARAMETRIC VALUES
 -4.000 MACH .900
 .000 18-ELV 10.000
 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XHRP .0000 IN. XT
 YHRP .0000 IN. YT
 ZHRP .0000 IN. ZT
 SCALE .0300

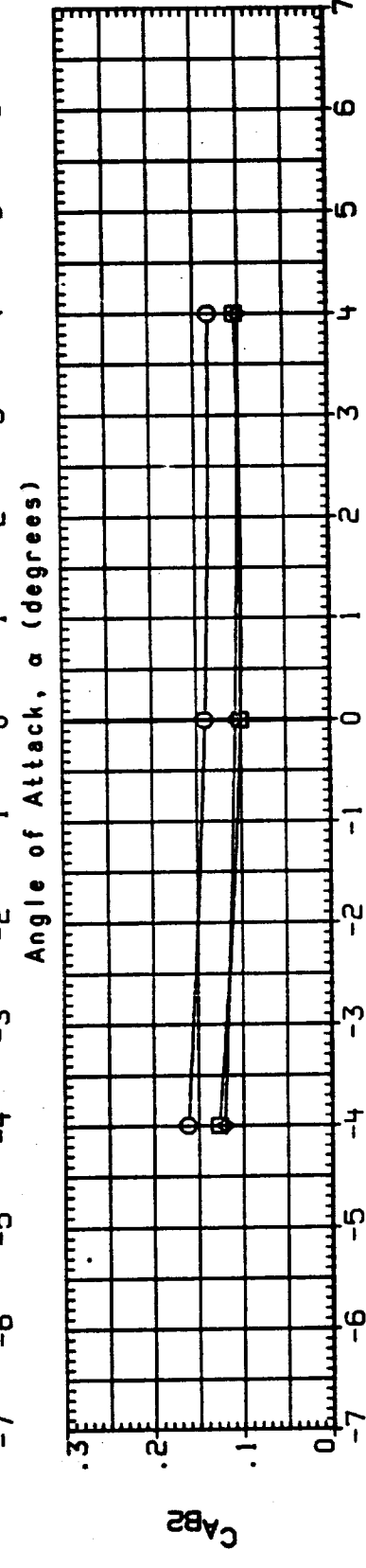
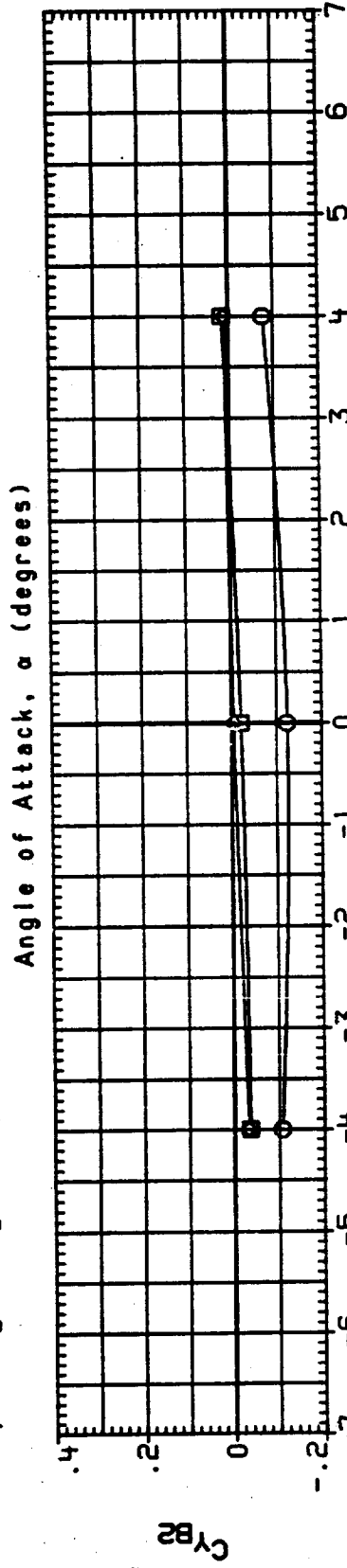
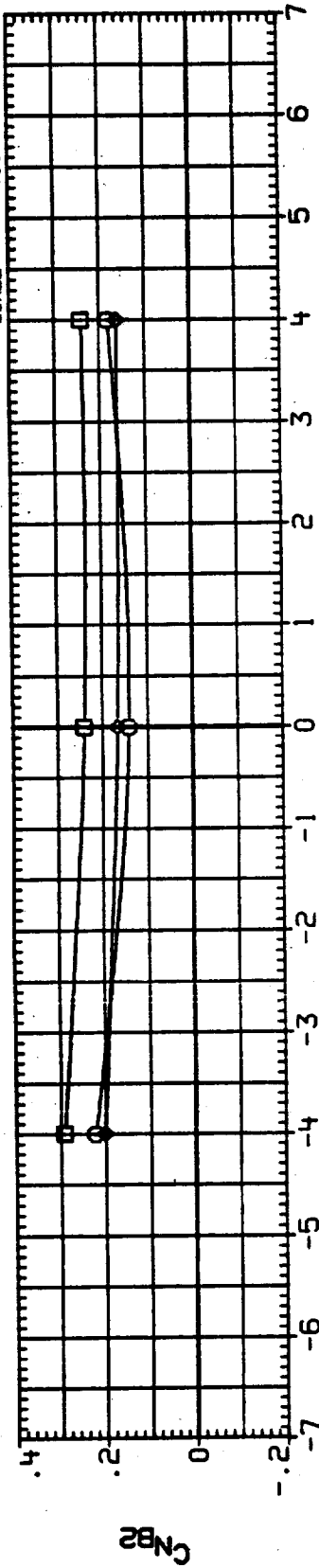


FIGURE 6. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS ON

13804 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP ON

BETA PARAMETRIC VALUES
 -4.000 MACH 1.100
 .000 IB-ELV 10.000
 4.000 OB-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XHRP .0000 IN. XT
 YHRP .0000 IN. YT
 ZHRP .0000 IN. ZT
 SCALE .0300

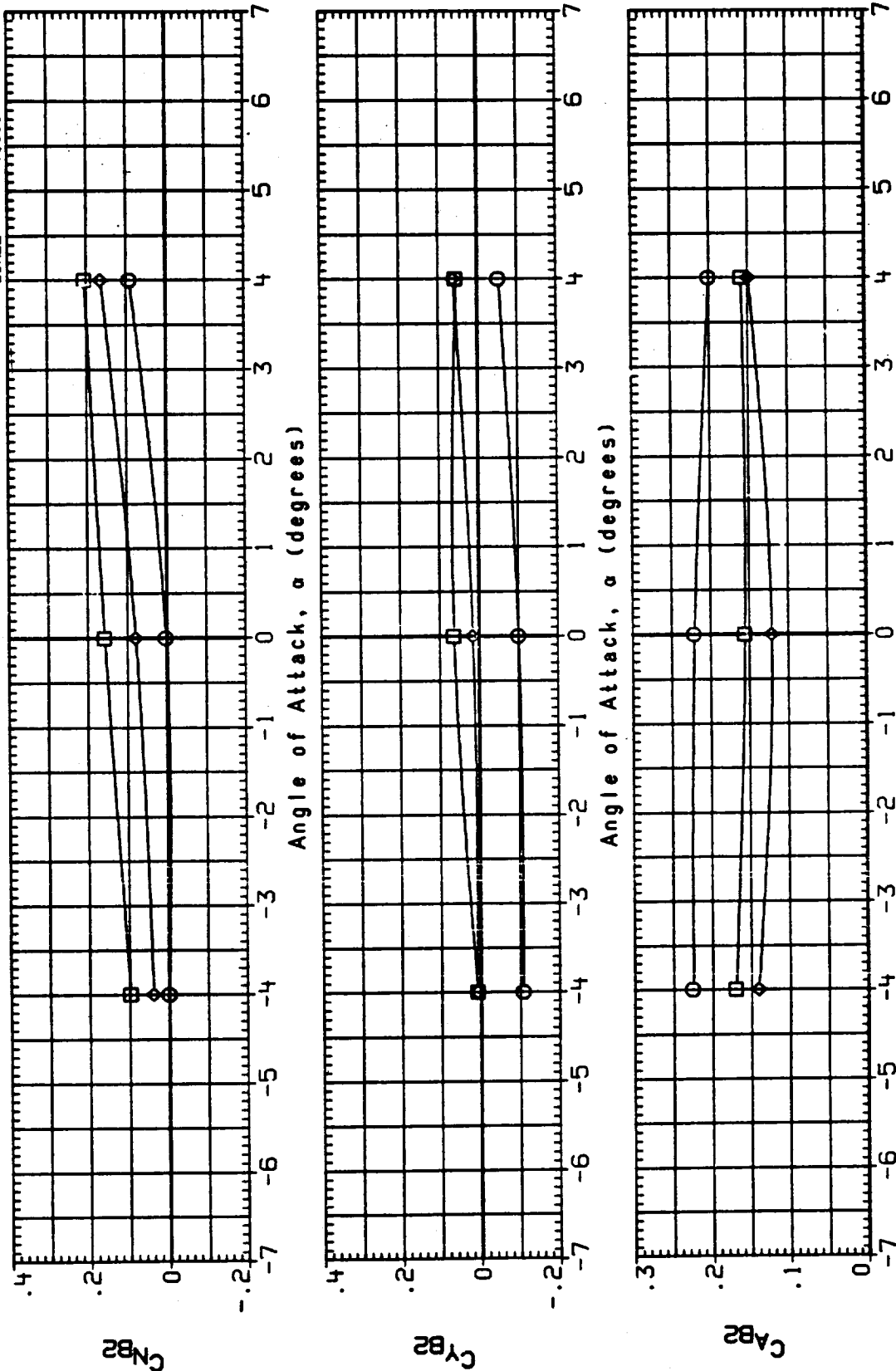


FIGURE 6. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS ON

131805 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RWP ON

BETA PARAMETRIC VALUES
 -4.000 MACH 1.250
 .000 18-ELV 10.000
 4.000 08-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

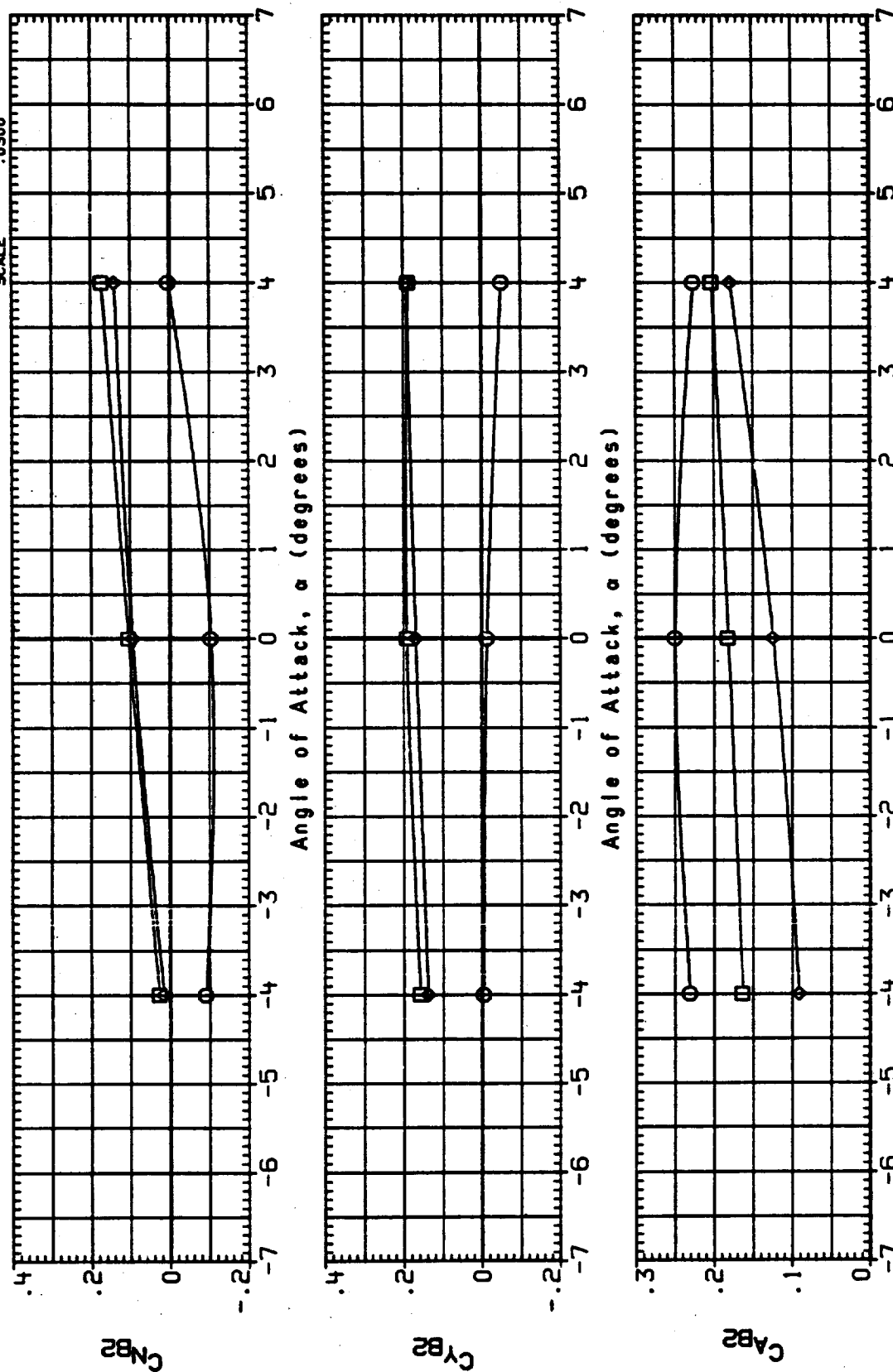


FIGURE 6. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS ON PAGE 20

13UB06 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RNP ON

SYMBOL \square \diamond

BETA -4.000
MACH 1.400
1B-ELV 10.000
08-ELV .000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

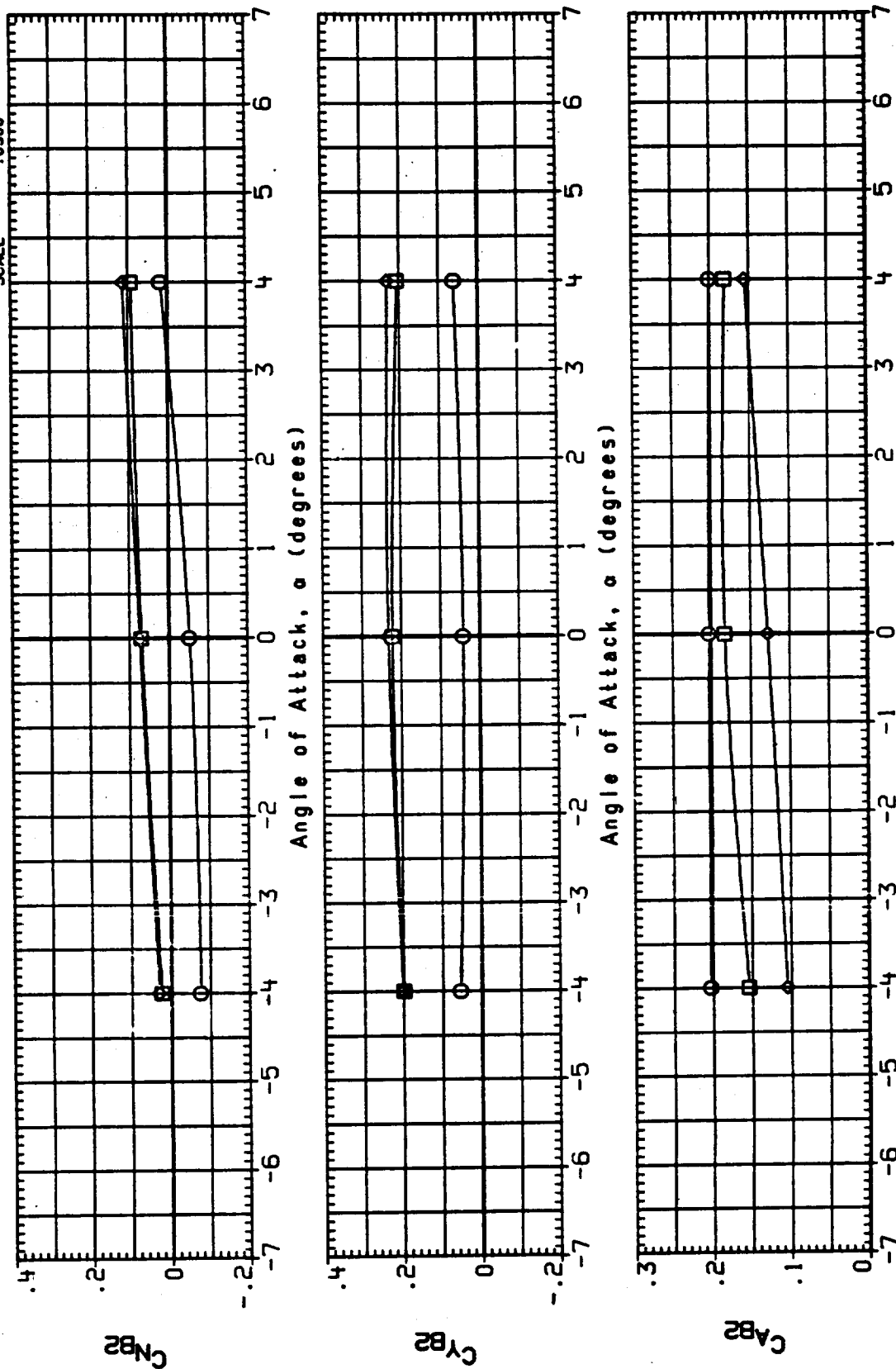


FIGURE 6. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND LO2 ANTIGYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS ON PAGE 21

137843
SYMBOL
◇
◇
◇

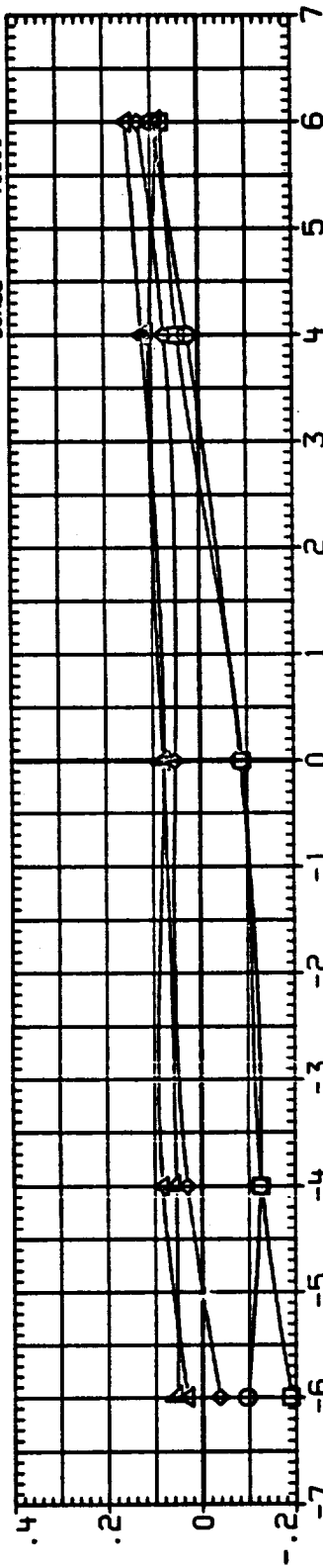
CONFIGURATION 1A1808, LH2 TK C.T. + G02 PRESS + L02A0, RAMPS ON

BETA
-5.000
-4.000
4.000
6.000

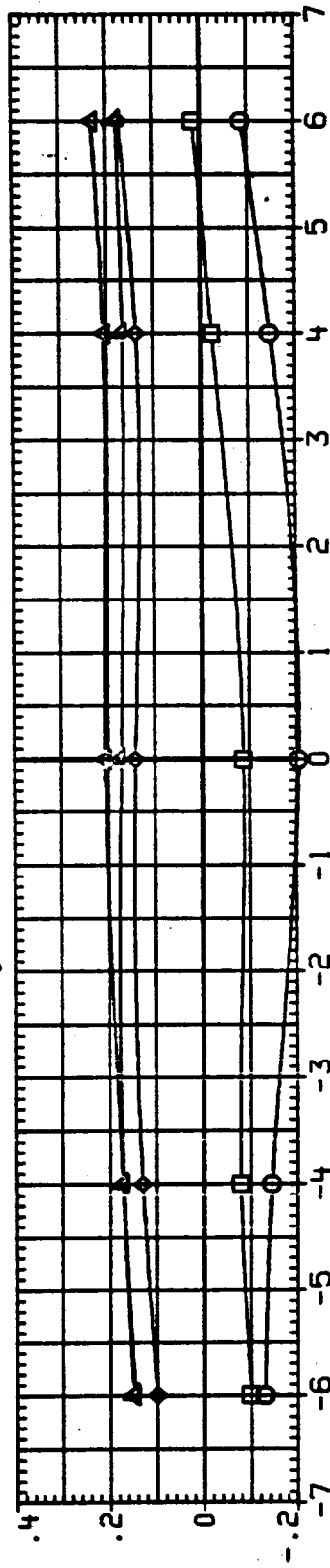
PARAMETRIC VALUES
MACH 1.550
Q (PSF) 600.000
IB-ELV 8.000
OB-ELV -5.000

REFERENCE INFORMATION

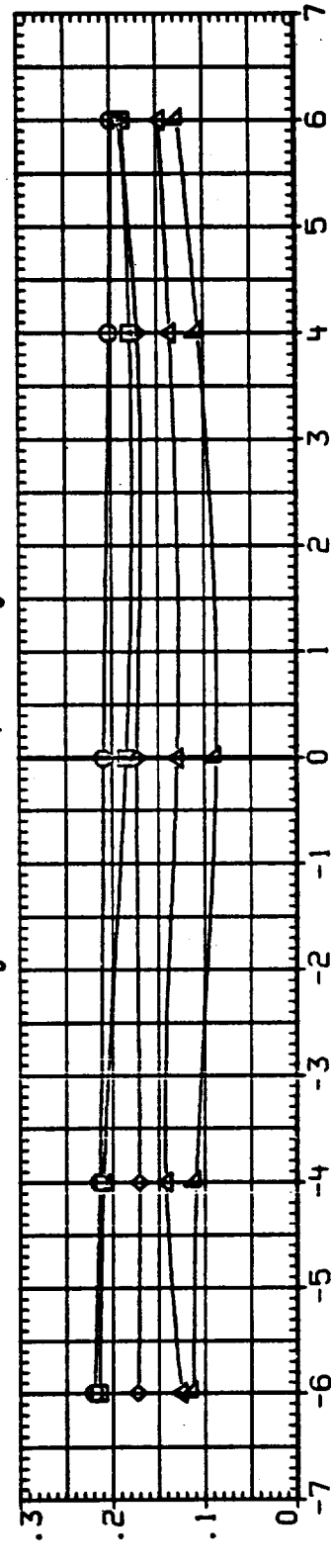
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XFRP .0000 IN. XT
YFRP .0000 IN. YT
ZFRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 6. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS ON

13V844
SYMBOL
◇
◇
◇

CONFIGURATION 1A1808 LH2 TK C.T. + G02 PRESS + L02AG RAMP ON

BETA PARAMETRIC VALUES
-6.000 MACH 2.000
-4.000 Q(PSF) 600.000
.000 IB-ELV 8.000
4.000 OB-ELV -5.000
6.000

REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

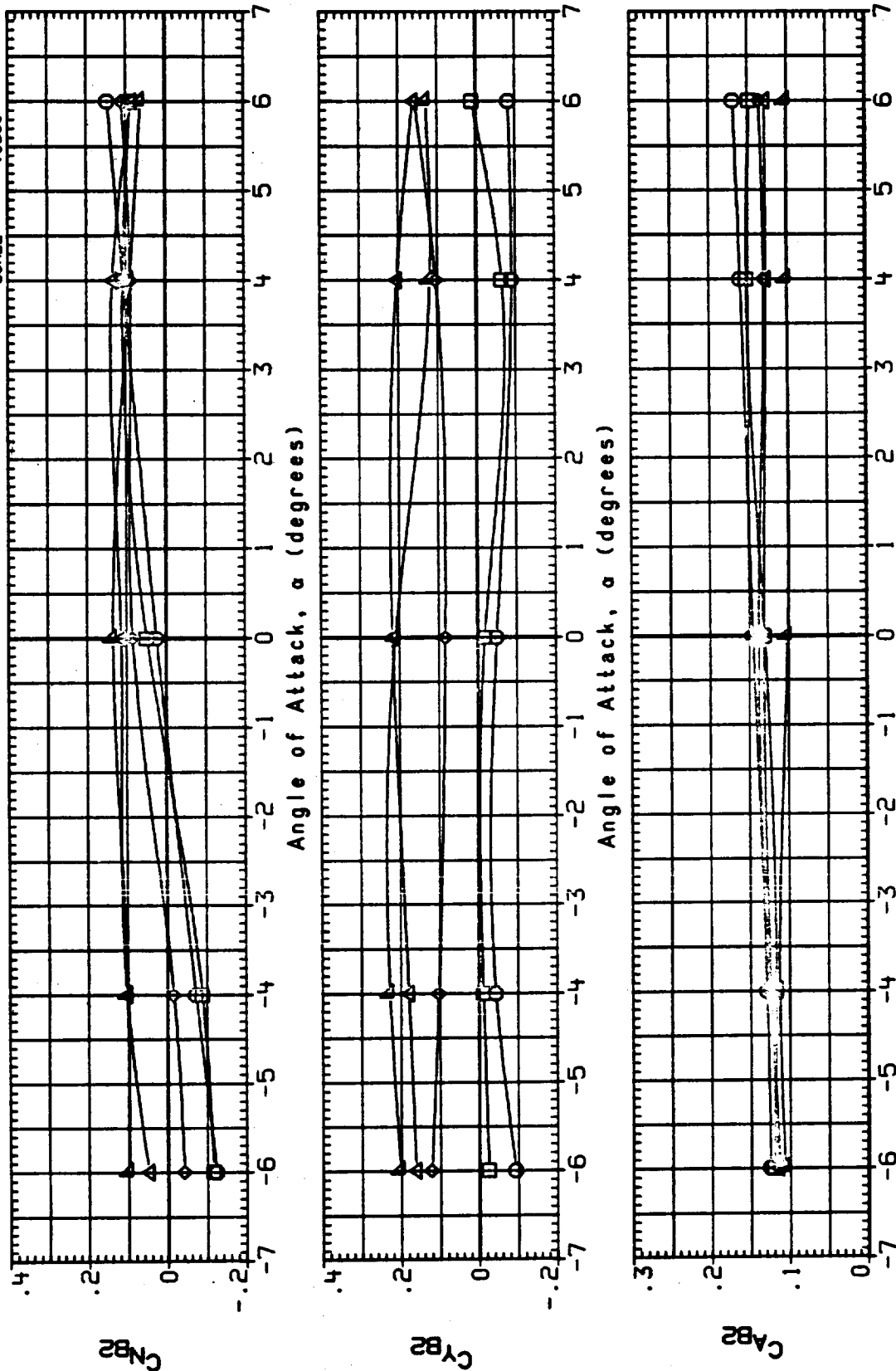


FIGURE 6. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMP ON

13VBH5

SYMBOL

◇

◇

◇

◇

CONFIGURATION

1A180B, LH2 TK C.T. + 002 PRESS + L02A0, RAMPs ON

BETA

PARAMETRIC VALUES

-6.000

MACH

2.500

-4.000

Q(PSF)

600.000

.000

16-ELV

8.000

4.000

08-ELV

-5.000

6.000

REFERENCE INFORMATION

SREF

.0171

SQ. IN

LREF

.0000

INCHES

BREF

.0000

INCHES

XMRP

.0000

IN. XT

YMRP

.0000

IN. YT

ZMRP

.0000

IN. ZT

SCALE

.0300

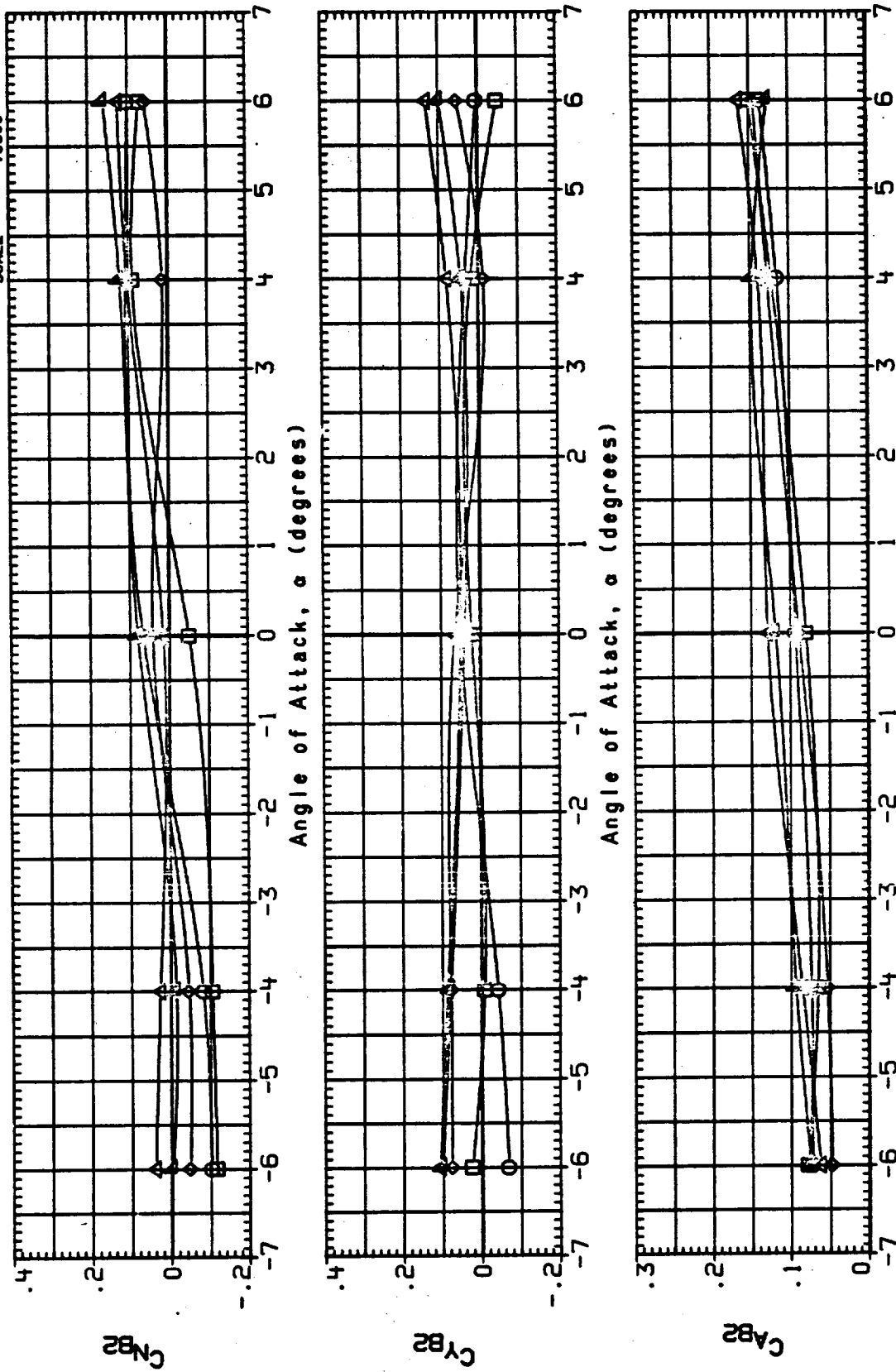


FIGURE 6. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPs ON

13UB07
SYMBOL

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP OFF

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH .600
19-ELV 10.000
08-ELV 9.000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

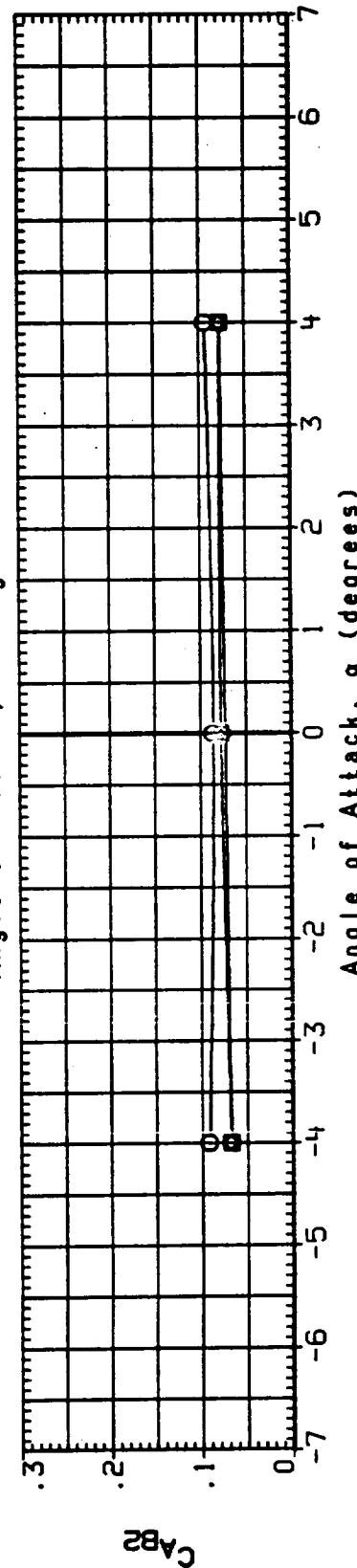
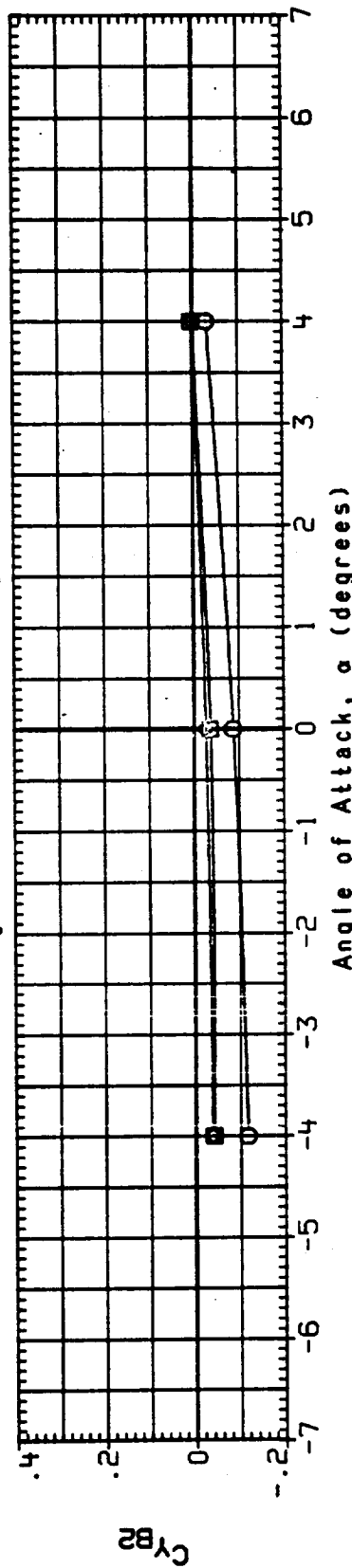
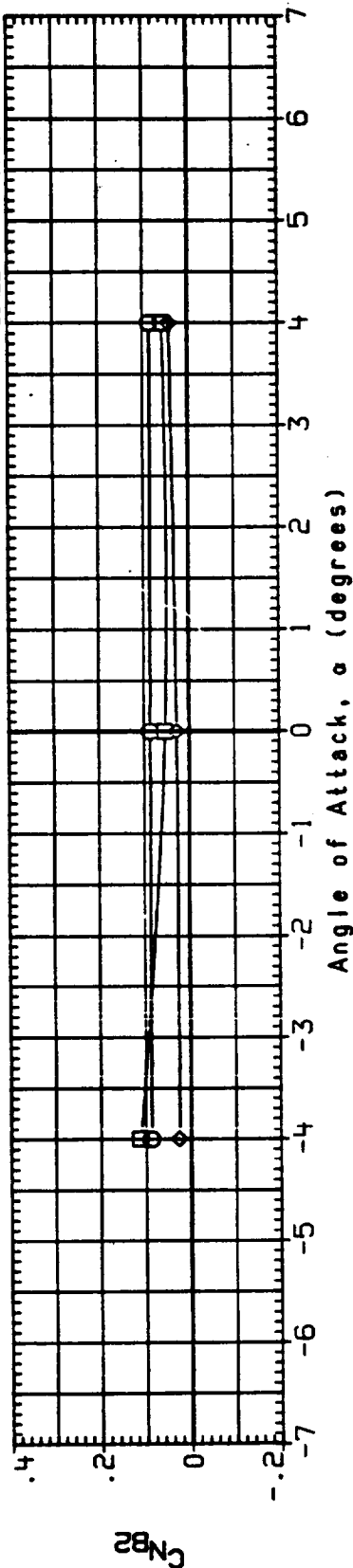


FIGURE 7. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS OFF

13UB08
SYMBOL \diamond

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

BETA	PARAMETRIC VALUES	REFERENCE INFORMATION
-4.000	MACH .900	SREF .0171 SQ. IN.
.000	18-ELV 10.000	LREF .0000 INCHES
4.000	08-ELV 9.000	BREF .0000 INCHES
		XMRP .0000 IN. XT
		YMRP .0000 IN. YT
		ZMRP .0000 IN. ZT
		SCALE .0300

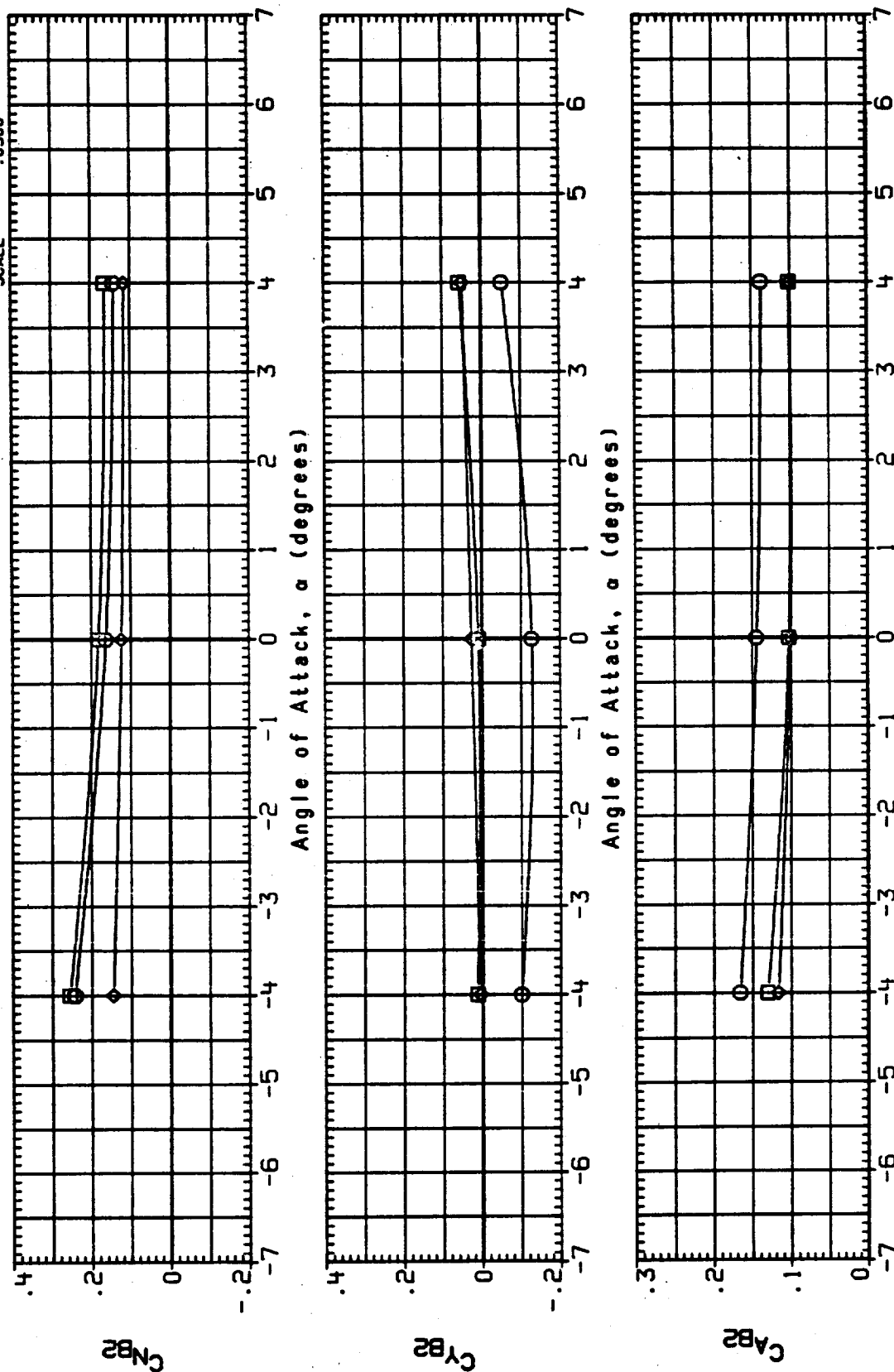


FIGURE 7. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS OFF

13J809 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RHP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.100
 .000 18-ELV 10.000
 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XHRP .0000 IN. XT
 YHRP .0000 IN. YT
 ZHRP .0000 IN. ZT
 SCALE .0300

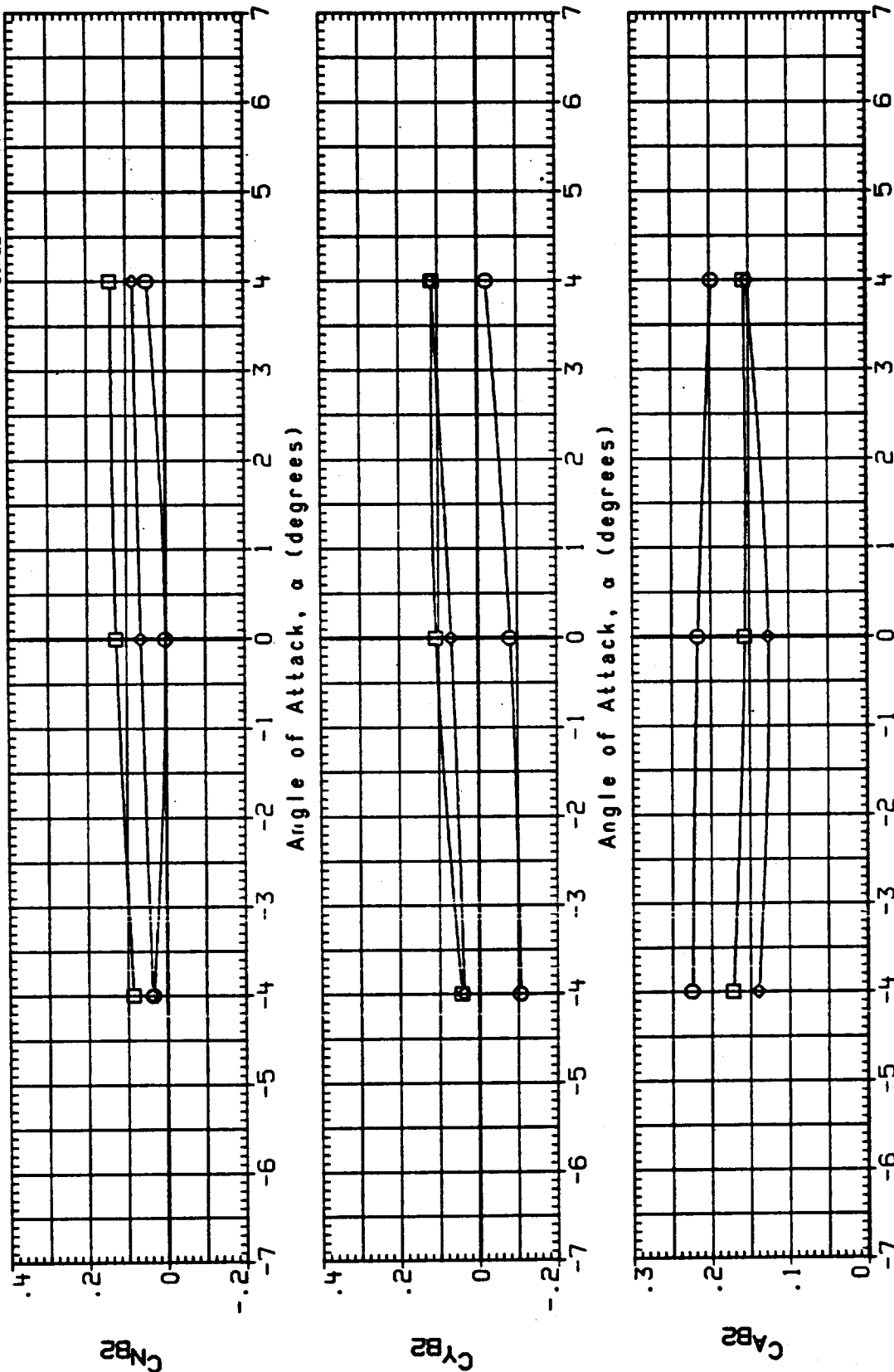


FIGURE 7. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS OFF

13UB10 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP OFF

SYMBOL \square \diamond

BETA	PARAMETRIC VALUES
-4.000	MACH 1.250
.000	18-ELV 10.000
4.000	08-ELV .000

REFERENCE INFORMATION

SREF	.0171	50. IN.
LREF	.0000	INCHES
BREF	.0000	INCHES
XRRP	.0000	IN. XT
YRRP	.0000	IN. YT
ZRRP	.0000	IN. ZT
SCALE	.0300	

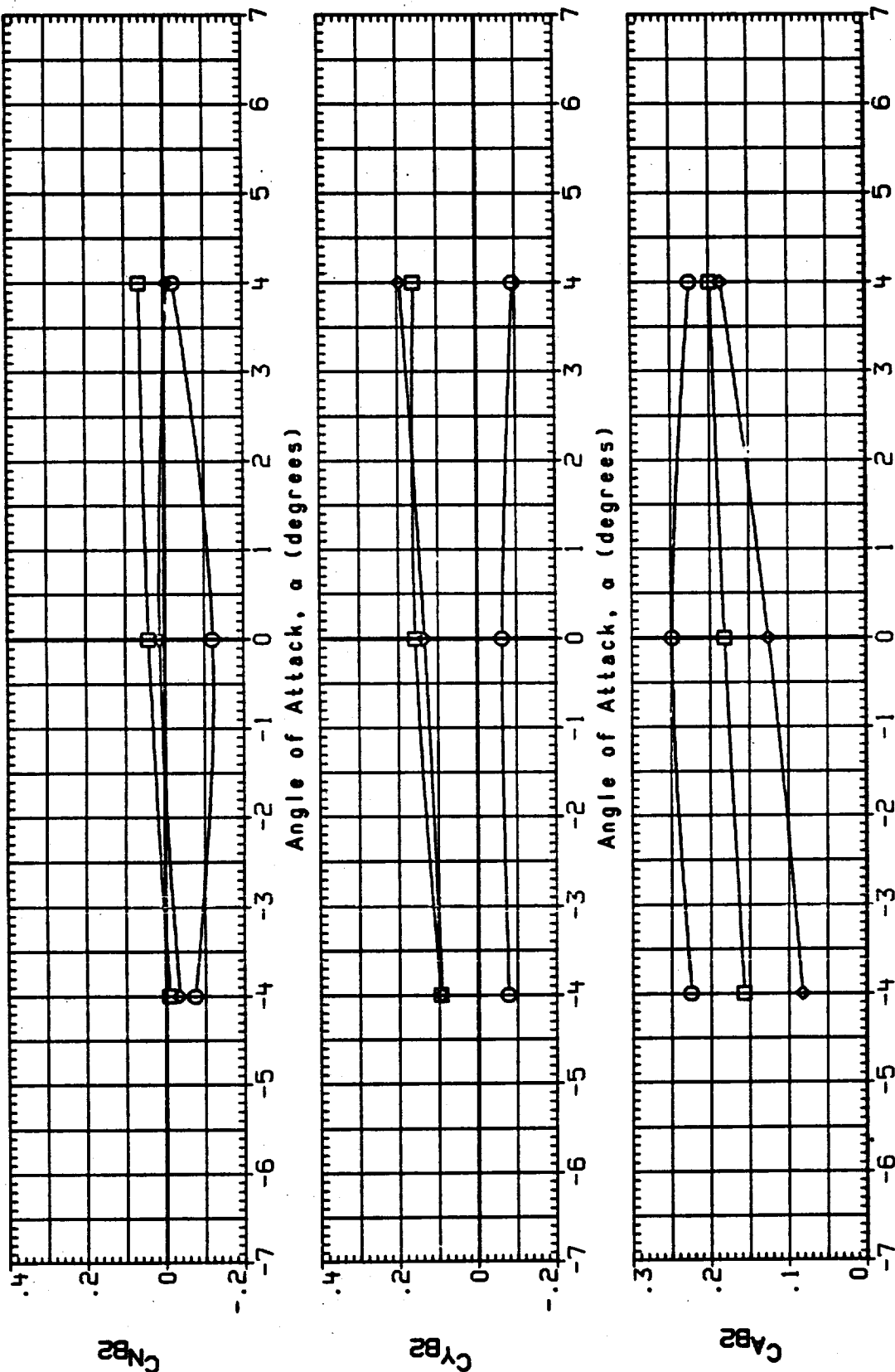


FIGURE 7. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS OFF

13UB11 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 4.000 IB-ELV 10.000
 4.000 OB-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

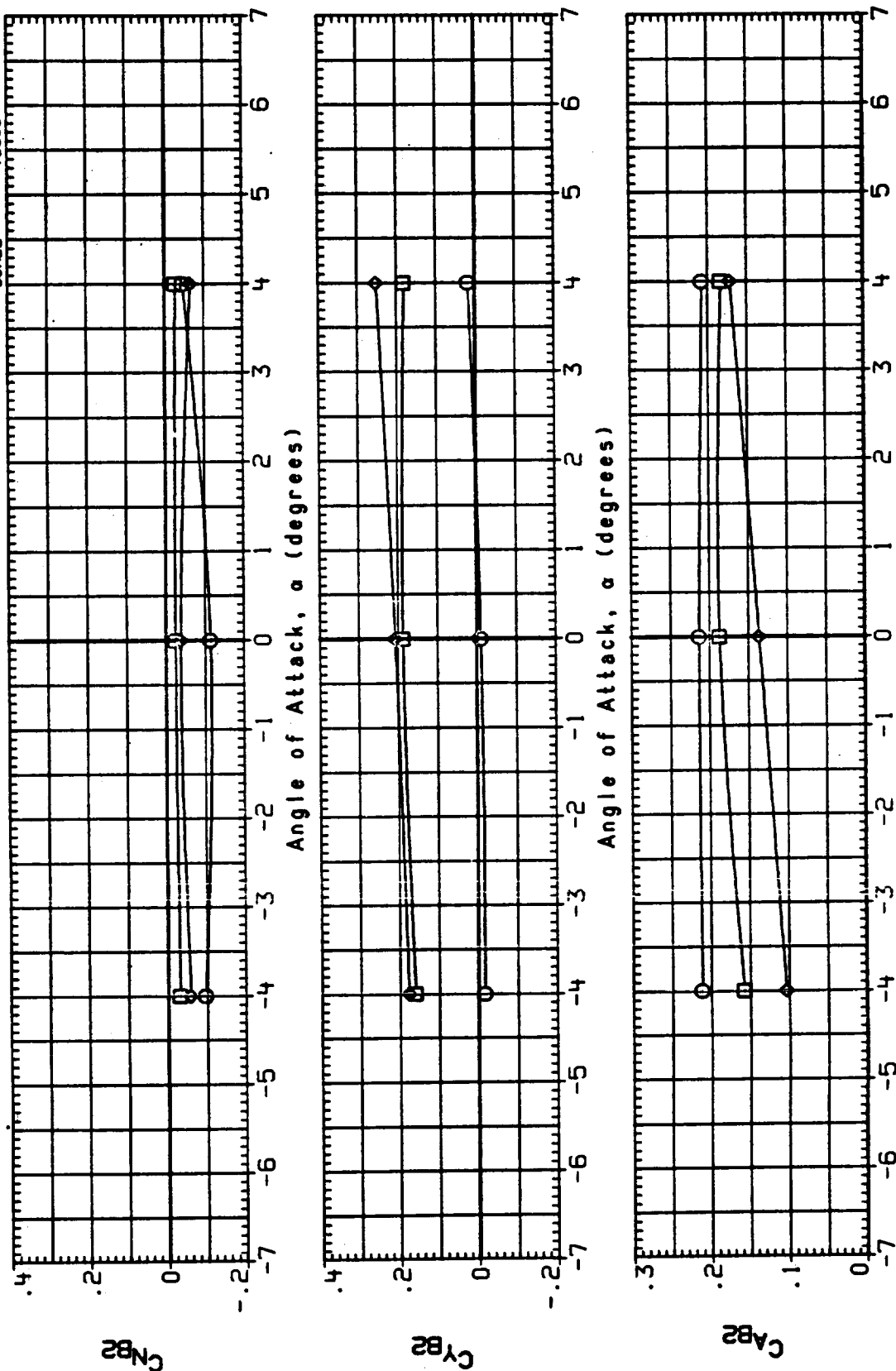


FIGURE 7. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS OFF

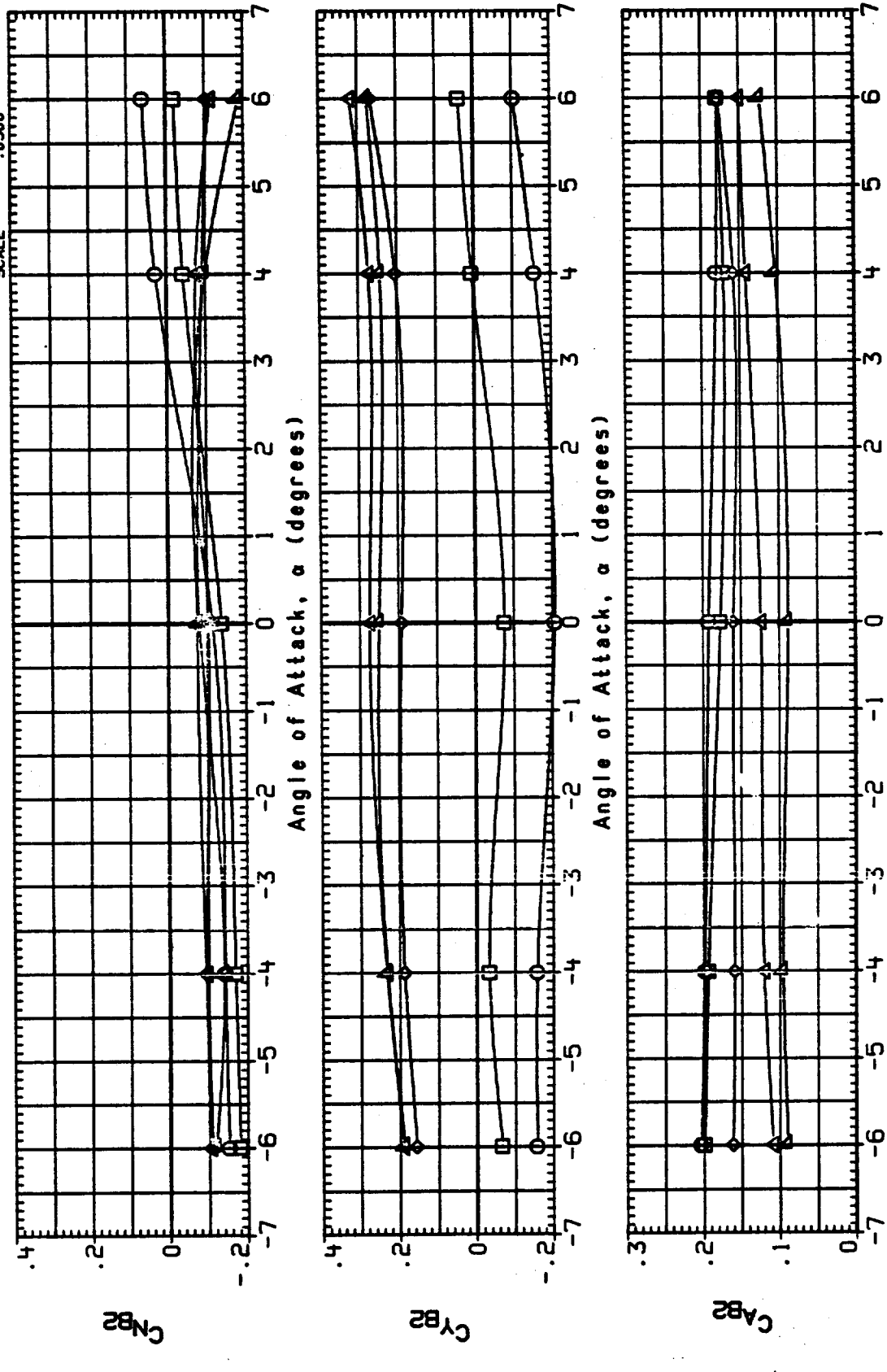
137846 CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

BETA PARAMETRIC VALUES

-6.000	MACH	1.550
-4.000	Q(PSF)	600.000
4.000	18-ELV	8.000
5.000	08-ELV	-5.000

REFERENCE INFORMATION

SREF	.0171	SO. IN
LREF	.0000	INCHES
BREF	.0000	IN. XT
YMRP	.0000	IN. Y1
ZMRP	.0000	IN. Z1
SCALE	.0300	



Angle of Attack, α (degrees)

FIGURE 7. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS OFF

CONFIGURATION 1A1908 LH2 TK C.T. + G02 PRESS + L02AG, RAMPFS OFF

BETA PARAMETRIC VALUES
 MACH 2.000
 Q(PSF) 600.000
 IB-ELV 8.000
 OB-ELV -5.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XTRP .0000 IN. XT
 YTRP .0000 IN. YT
 ZTRP .0000 IN. ZT
 SCALE .0300

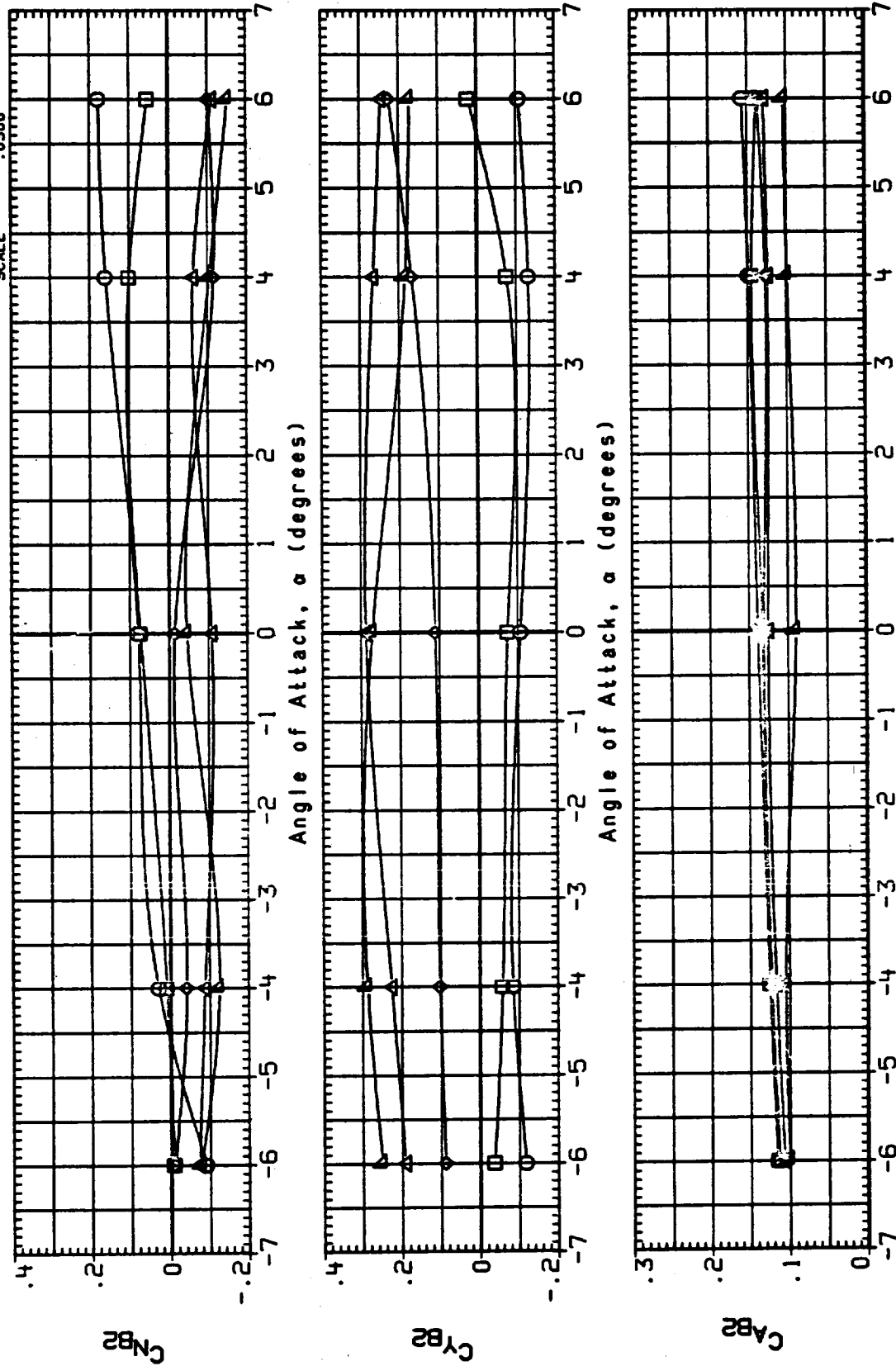


FIGURE 7. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPFS OFF

REFERENCE INFORMATION

[illegible]

	MACH	2.500
-6.000		
-4.000	0185F1	800.000

18-ELV
8.000

	000.9	A73-B0	-5.000
	000.4		

SREF	.0171	SD. IN
1 DEC	0000	INCHES

	INCHES	INCHES
LAUF	.0000	.0000
BREF	.0000	.0000

XMRP	.0000	XT
YMRP	.0000	YT

IN. ZT
0000
ZMRP

SCALE 0300

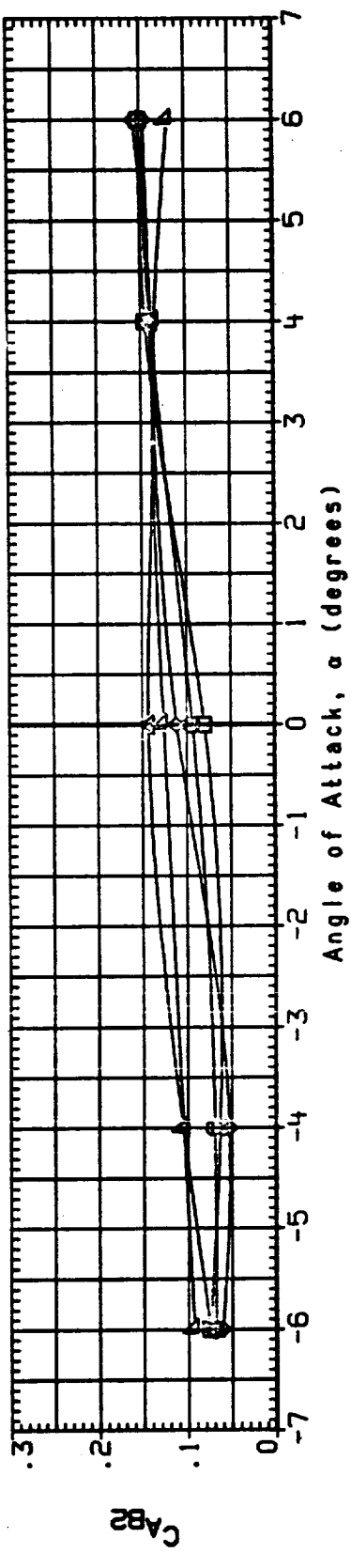
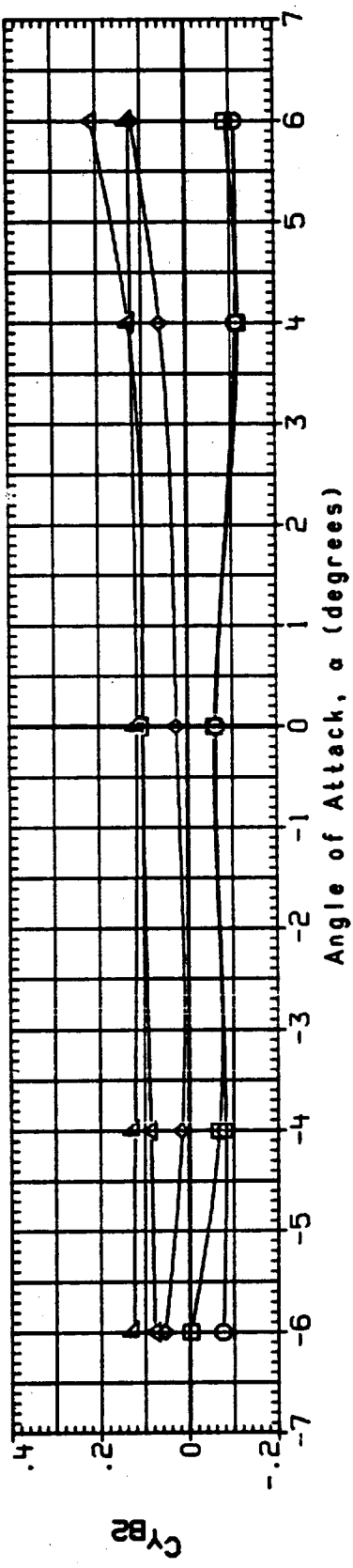
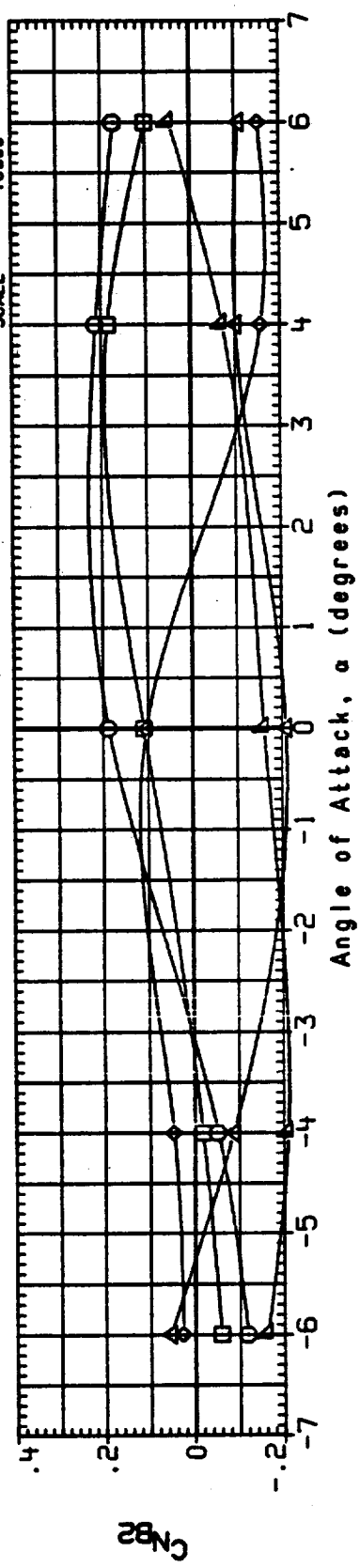


FIGURE 7. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND LO2 ANTIGEYSER LINES COMBINED, XT = 1043.0 TO 1237.9, RAMPS OFF PAGE

13UB02
SYMBOL

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

BETA PARAMETRIC VALUES

MACH .600
IB-ELV 10.000
OB-ELV 9.000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

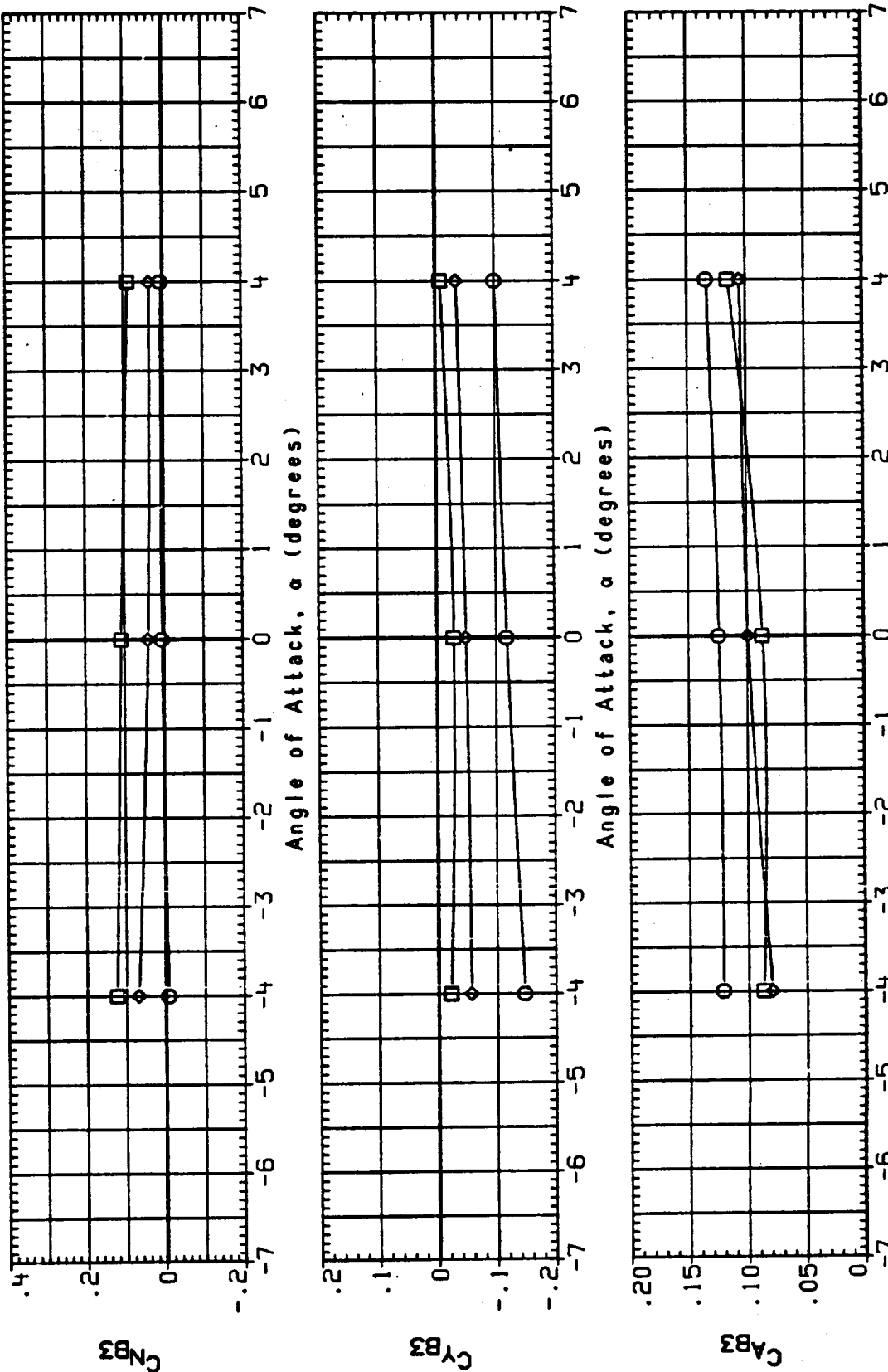


FIGURE 8. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS ON

13UB03
SYMBOL

◇

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 A0 LN, RMP ON

BETA
-4.000
.000
4.000

PARAMETRIC VALUES
MACH .900
IB-ELV 10.000
OB-ELV 9.000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

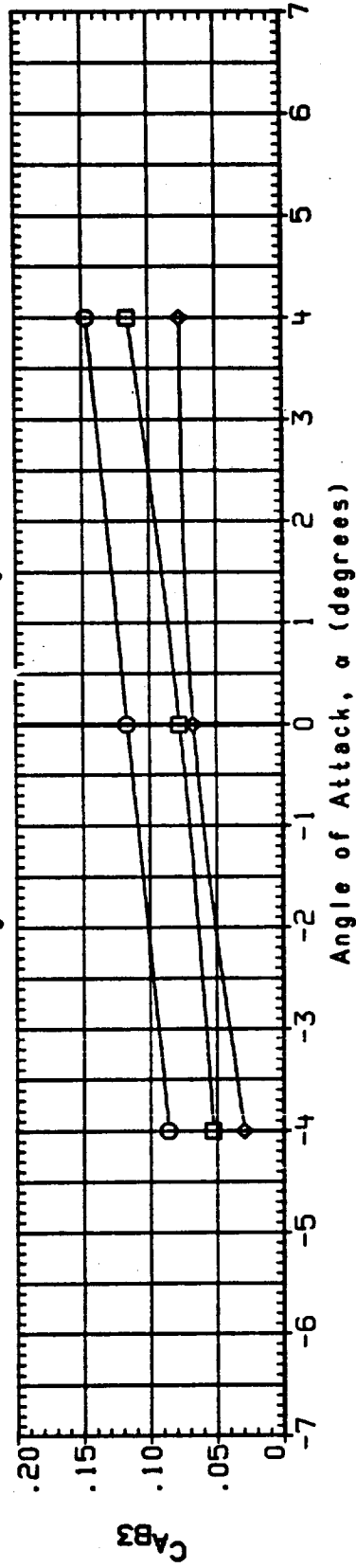
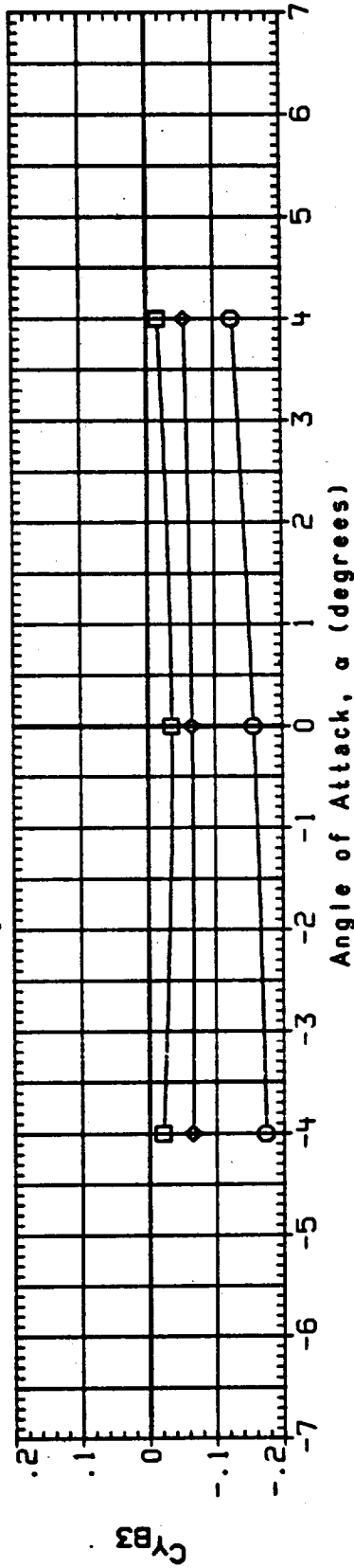
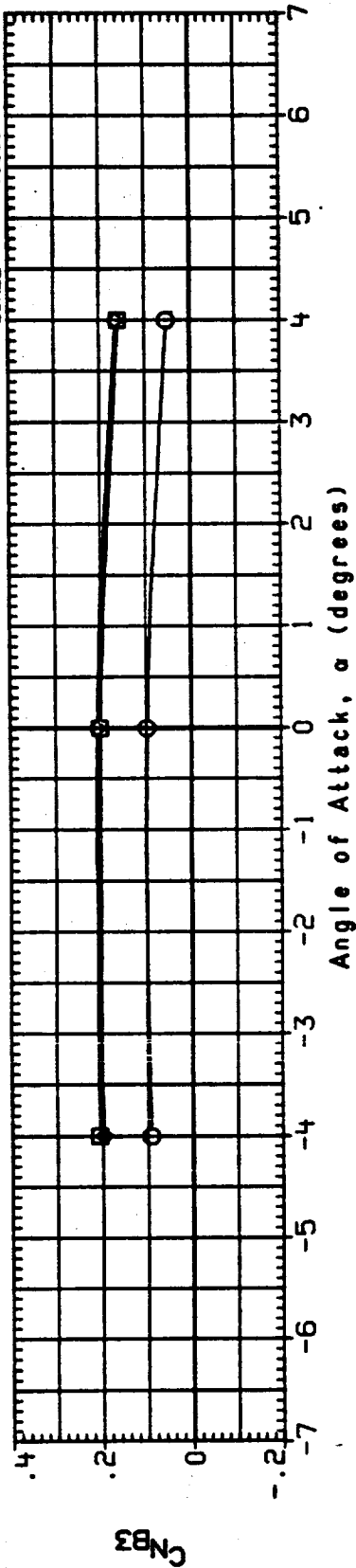


FIGURE 8. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS

13.804 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP ON

BETA PARAMETRIC VALUES
 -4.000 MACH 1.100
 .000 1B-ELV 10.000
 4.000 0B-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XTRP .0000 IN. XT
 YTRP .0000 IN. YT
 ZTRP .0000 IN. ZT
 SCALE .0300

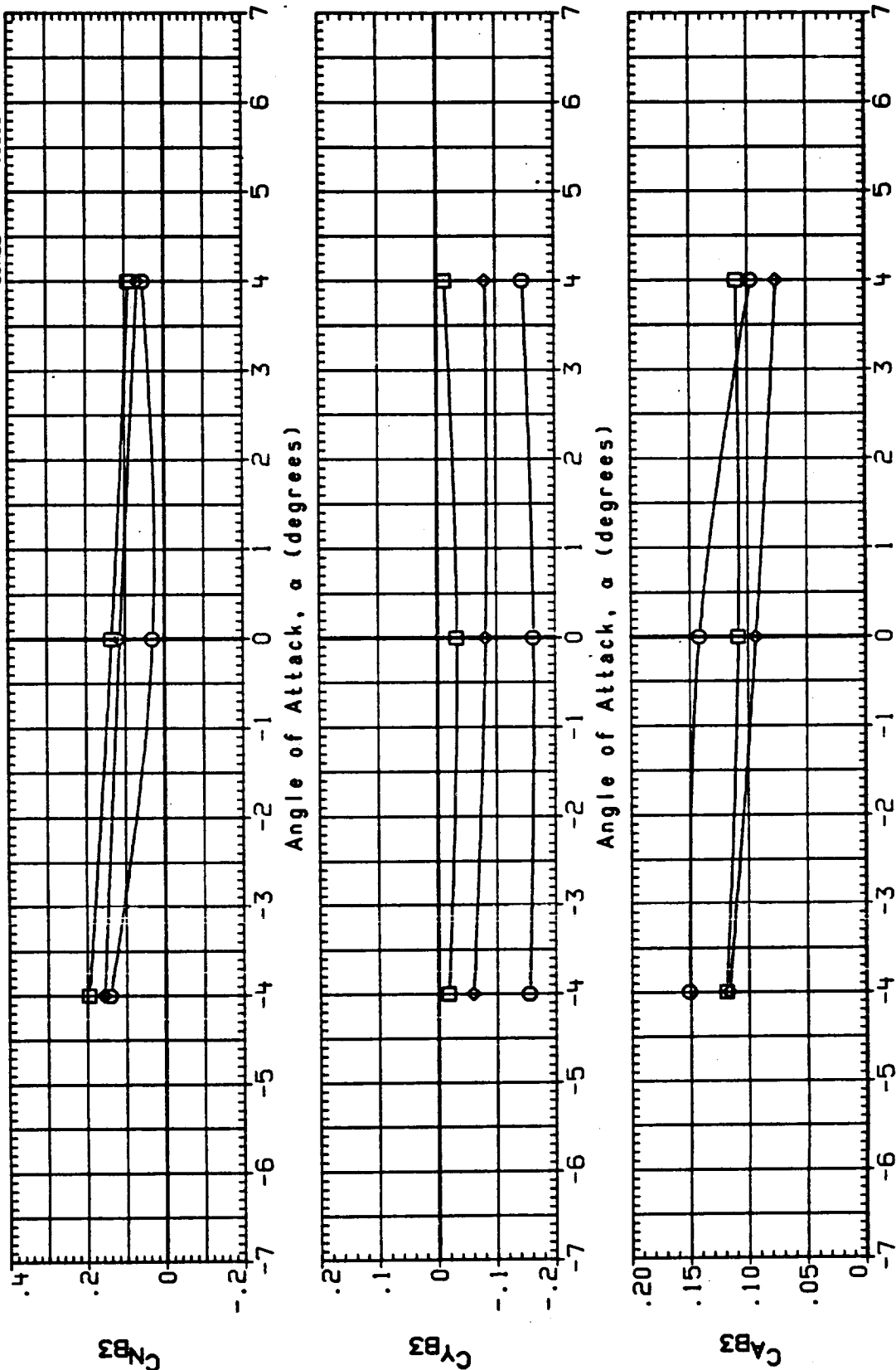


FIGURE 8. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS ON

13UB05
SYMBOL

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP ON
BETA
-4.000 MACH 1.250
.000 1B-ELV 10.000
4.000 08-ELV .000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XPRP .0000 IN. XT
YPRP .0000 IN. YT
ZPRP .0000 IN. ZT
SCALE .0300

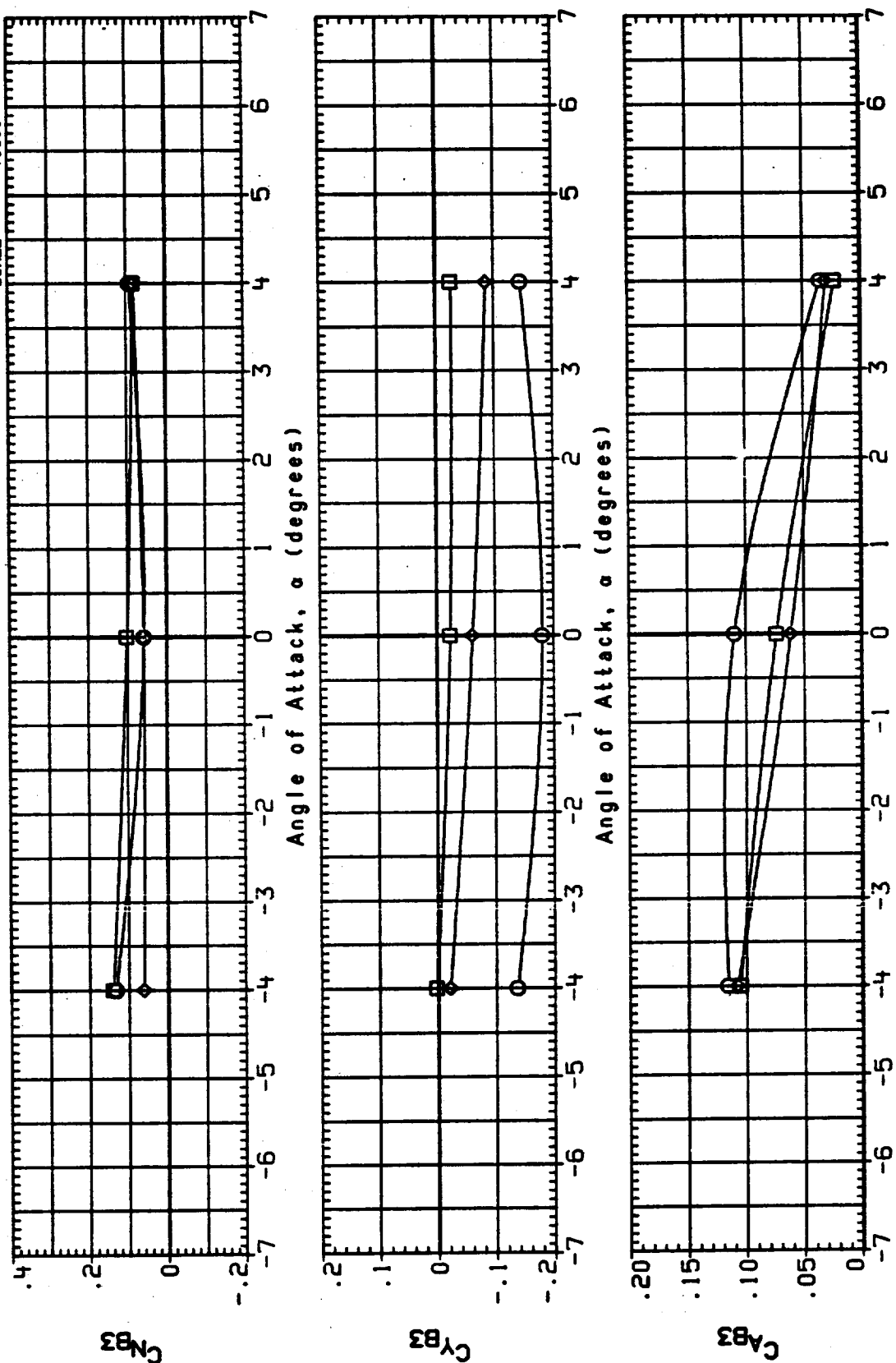


FIGURE 8. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSEY LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS ON PAGE 36

13UB08 CONFIGURATION 1A190A, LH2 TK C TRY + 002 P + L02 AG LN, RRP ON

SYMBOL



PARAMETRIC VALUES
 BETA -4.000 MACH 1.400
 .000 18-ELV 10.000
 4.000 08-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XRRP .0000 IN. XT
 YRRP .0000 IN. YT
 ZRRP .0000 IN. ZT
 SCALE .0300

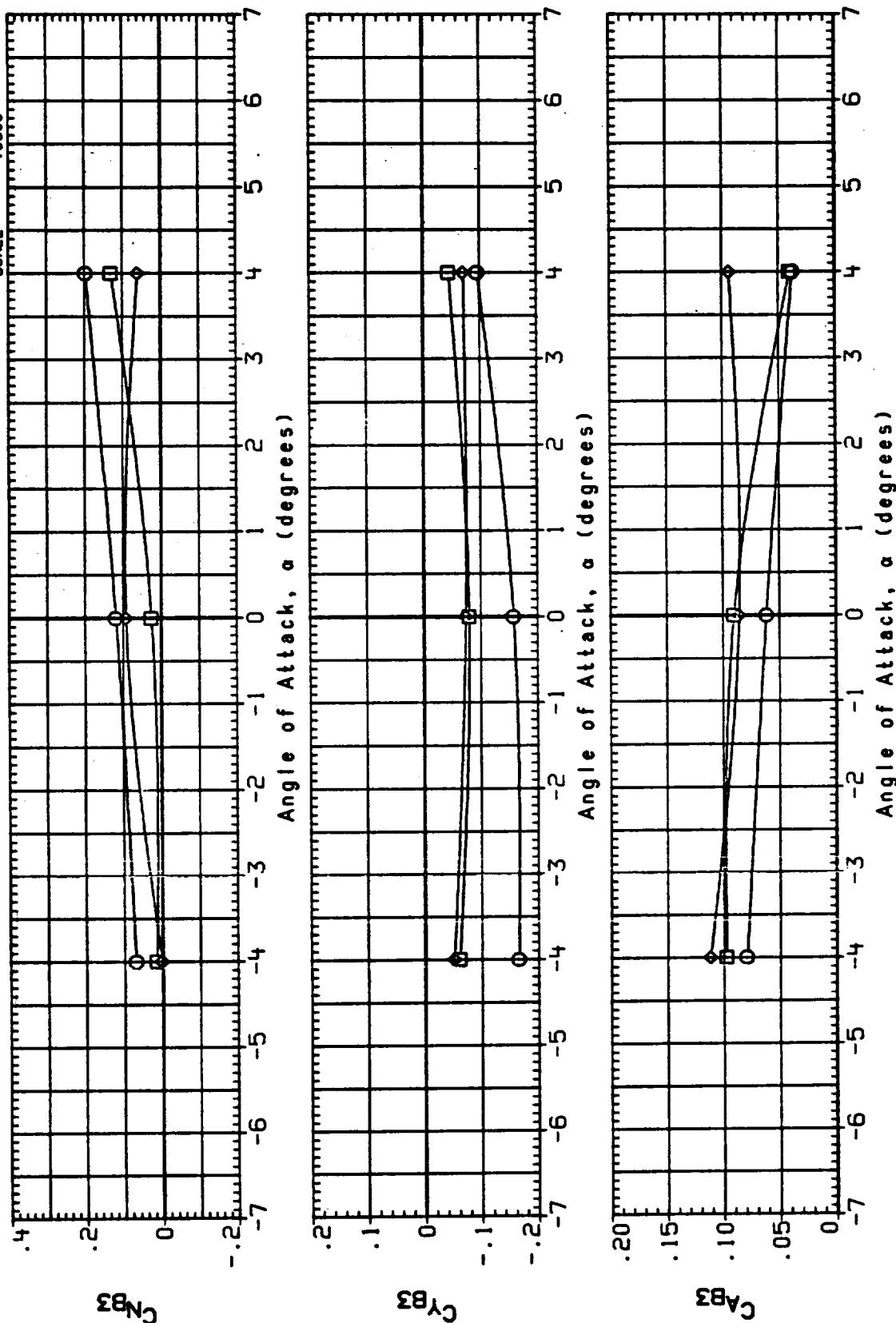


FIGURE 8. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS ON

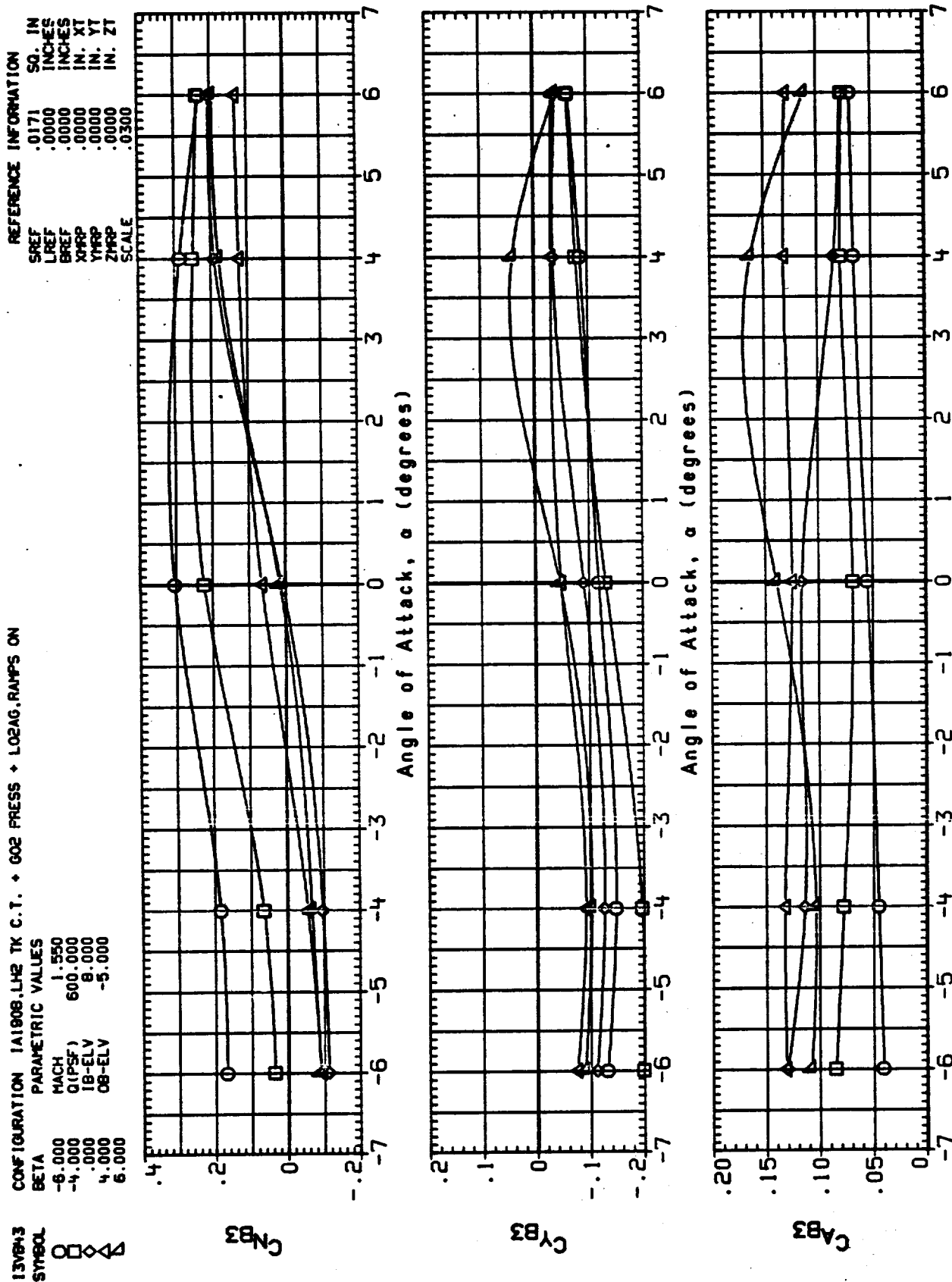


FIGURE 8. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS ON

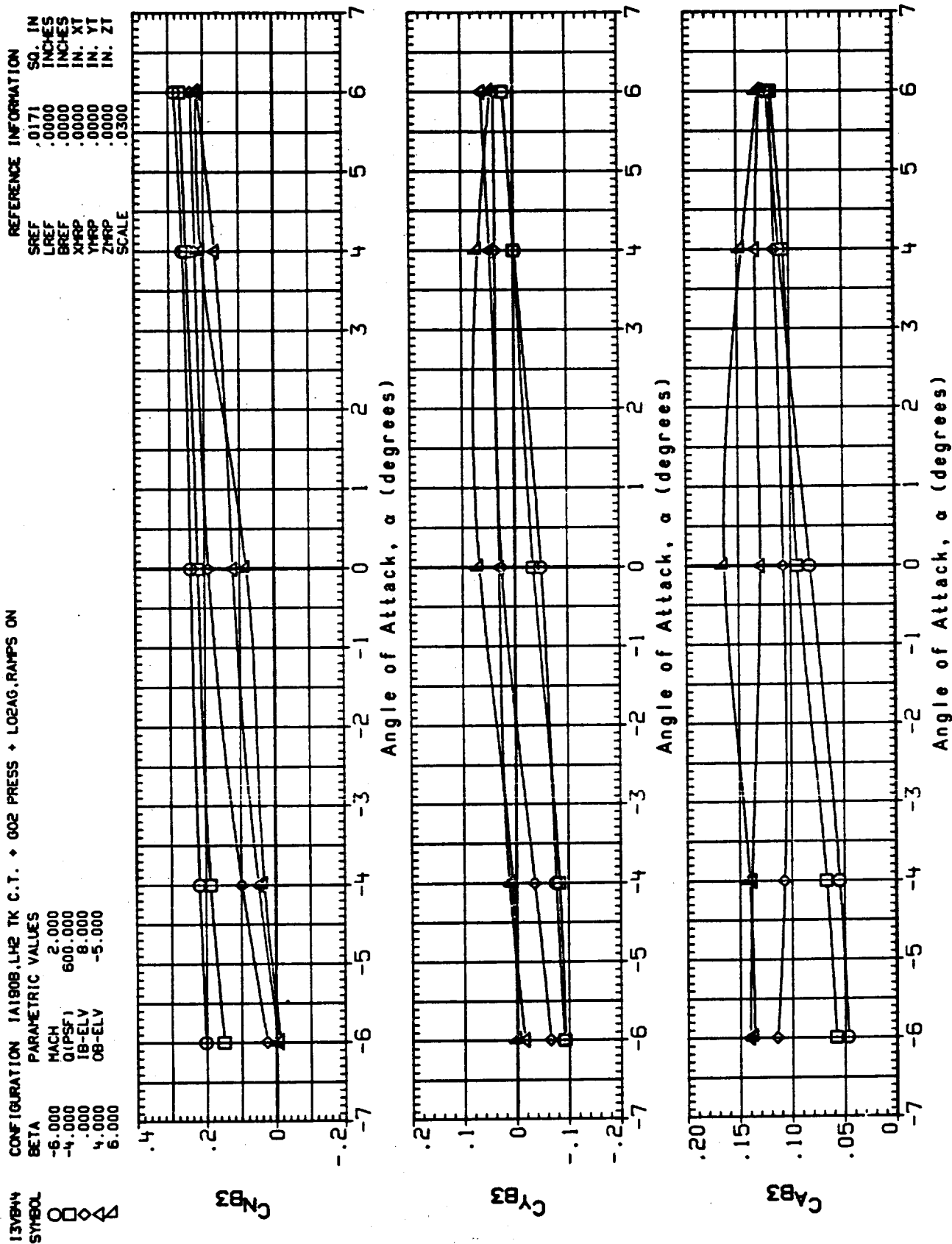


FIGURE 8. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS ON

13V845

SYMBOL

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + L02A0, RAMPS ON

BETA

PARAMETRIC VALUES

MACH 2.500

Q(PSF) 600.000

18-ELV 8.000

08-ELV -5.000

6.000

REFERENCE INFORMATION

SREF .0171 SQ. IN

LREF .0000 INCHES

BREF .0000 INCHES

XMRP .0000 IN. XT

YMRP .0000 IN. YT

ZMRP .0000 IN. ZT

SCALE .0300

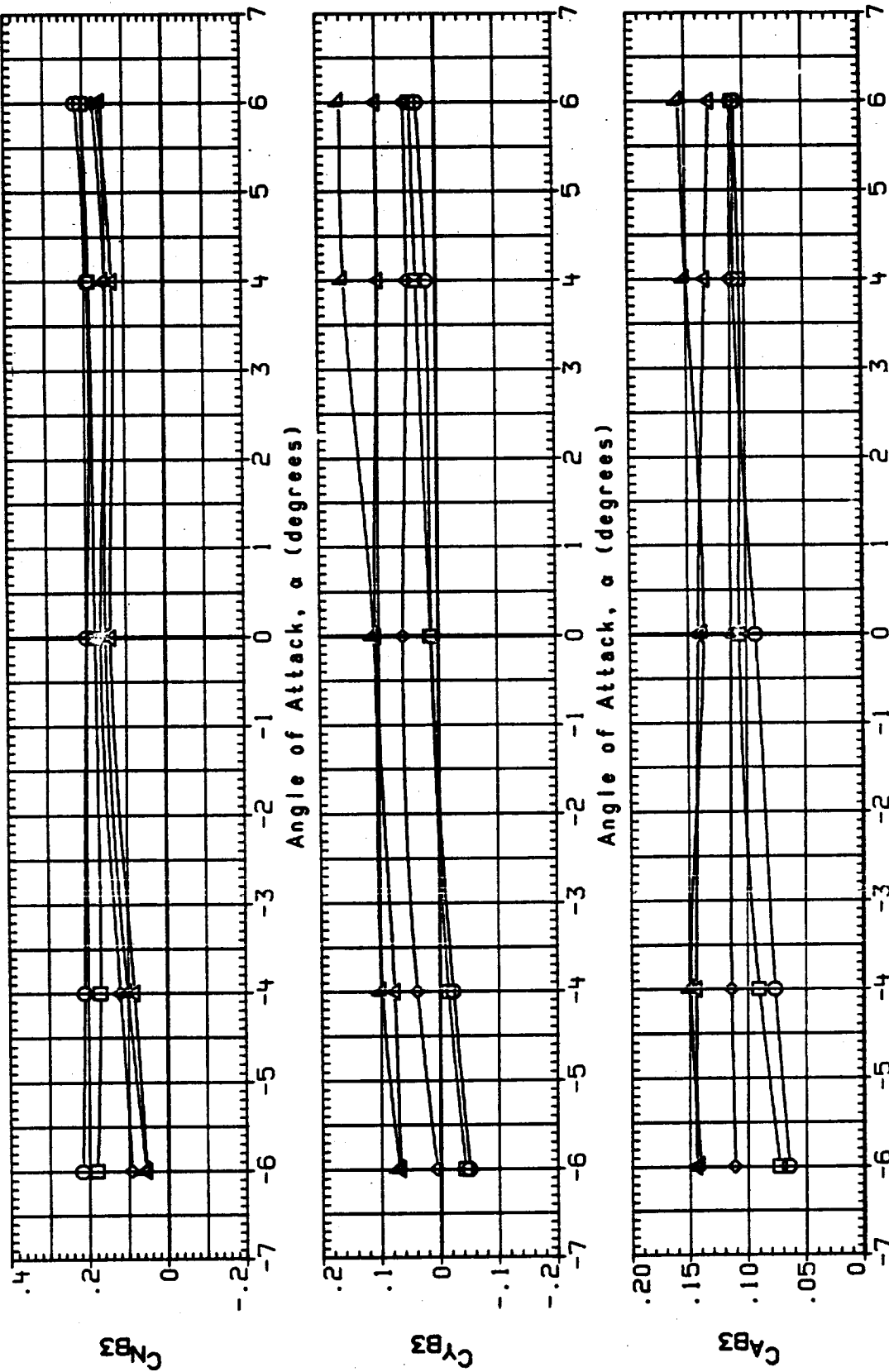


FIGURE 8. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS ON

13J807 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

BETA	PARAMETRIC VALUES
-4.000	MACH 500
.000	IB-ELV 10.000
4.000	OB-ELV 9.000

REFERENCE INFORMATION	
SREF	.0171 SQ. IN.
LREF	.0000 INCHES
BREF	.0000 INCHES
XTRP	.0000 IN. XT
YTRP	.0000 IN. YT
ZTRP	.0000 IN. ZT
SCALE	.0300

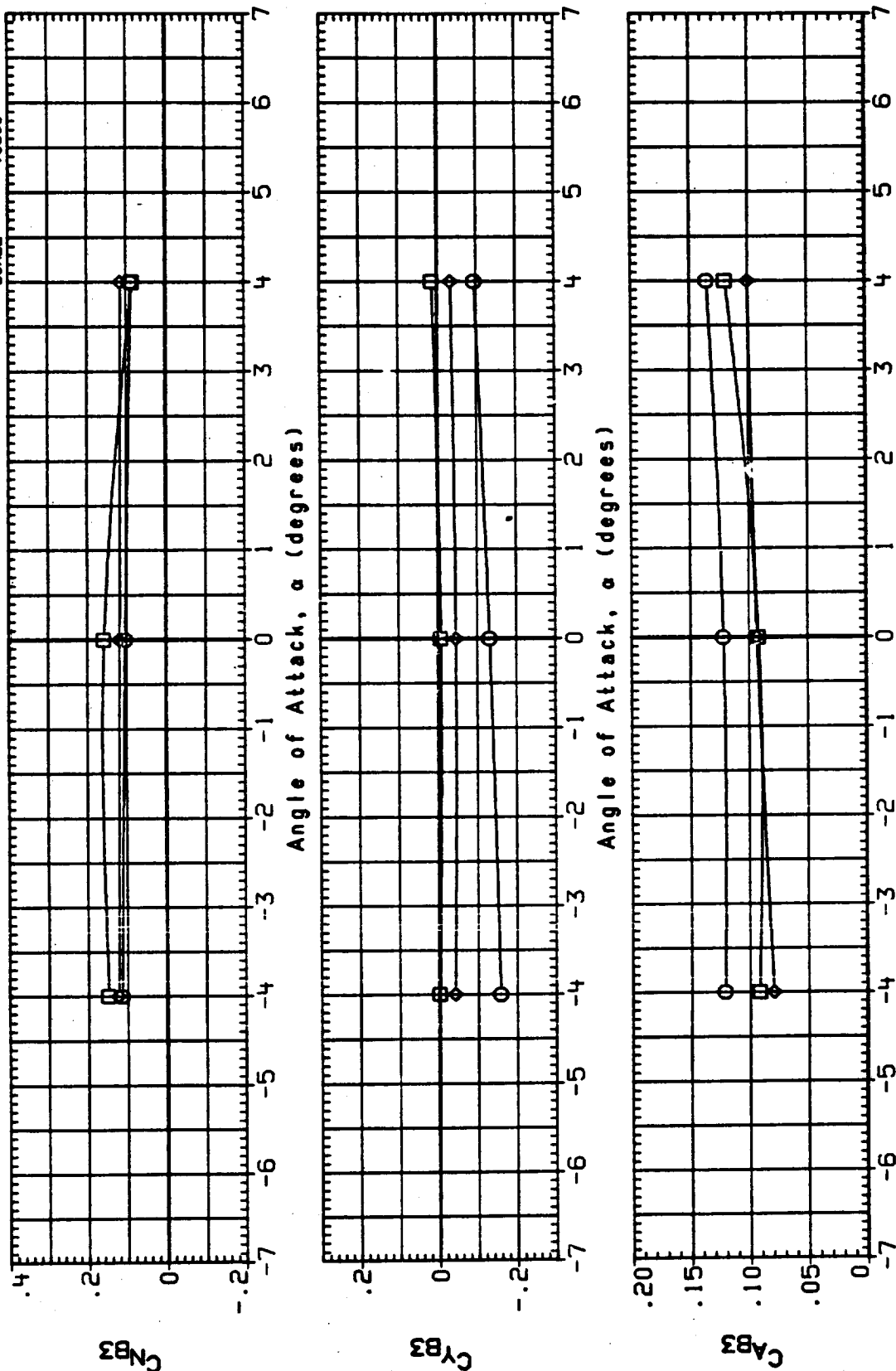


FIGURE 9. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS OFF

13UB08 CONFIGURATION 1A180A, LH2 TK C TRY + 002 P + L02 AG LN,RMP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH .900
 .000 18-ELV 10.000
 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

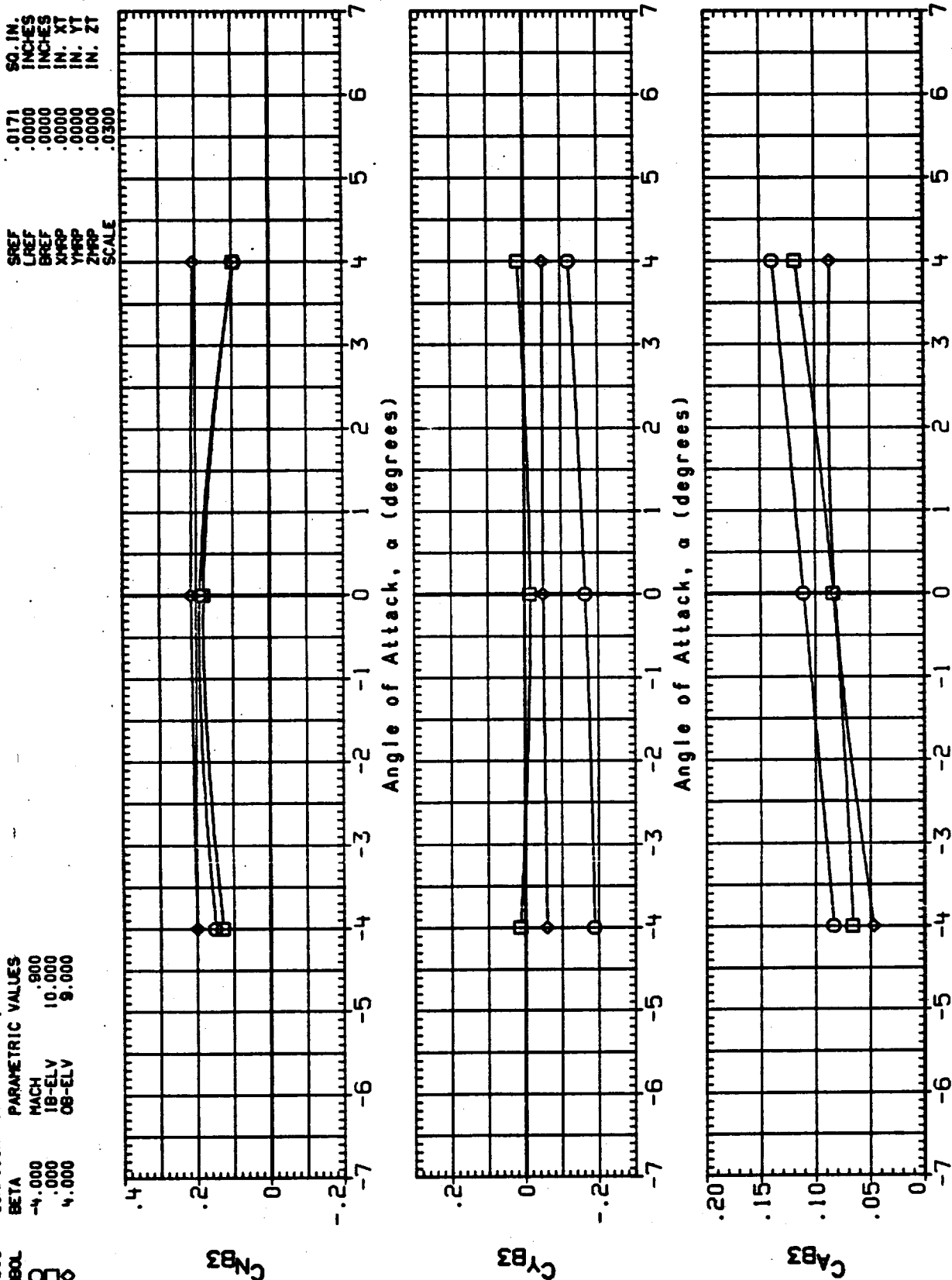


FIGURE 9. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSEY LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS OFF

13UB09 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP OFF

REFERENCE INFORMATION

SREF	.0171	SO. IN.
LREF	.0000	INCHES
BREF	.0000	INCHES
XMRP	.0000	IN. XT
YMRP	.0000	IN. YT
ZMRP	.0000	IN. ZT
SCALE	.0300	

PARAMETRIC VALUES

BETA	MACH	1.100
-4.000	IB-ELV	10.000
.000	OB-ELV	9.000
4.000		

13UB09
SYMBOL

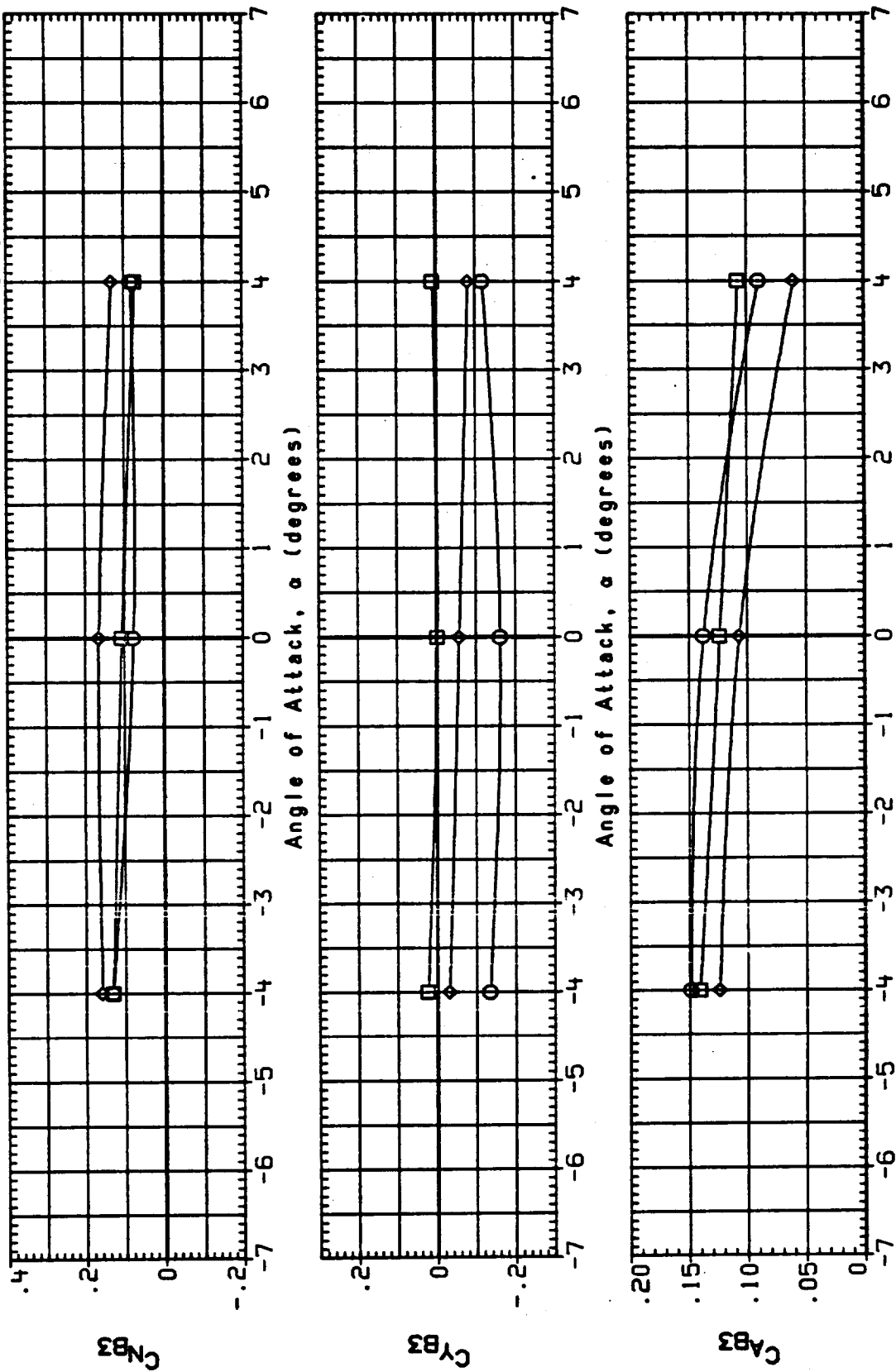


FIGURE 9. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS OFF

13UB10
SYMBOL

CONFIGURATION 1A180A, LH2 TK C TRY + G02 P + L02 AG LN, RHP OFF

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH 1.250
IB-ELV 10.000
OB-ELV .000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

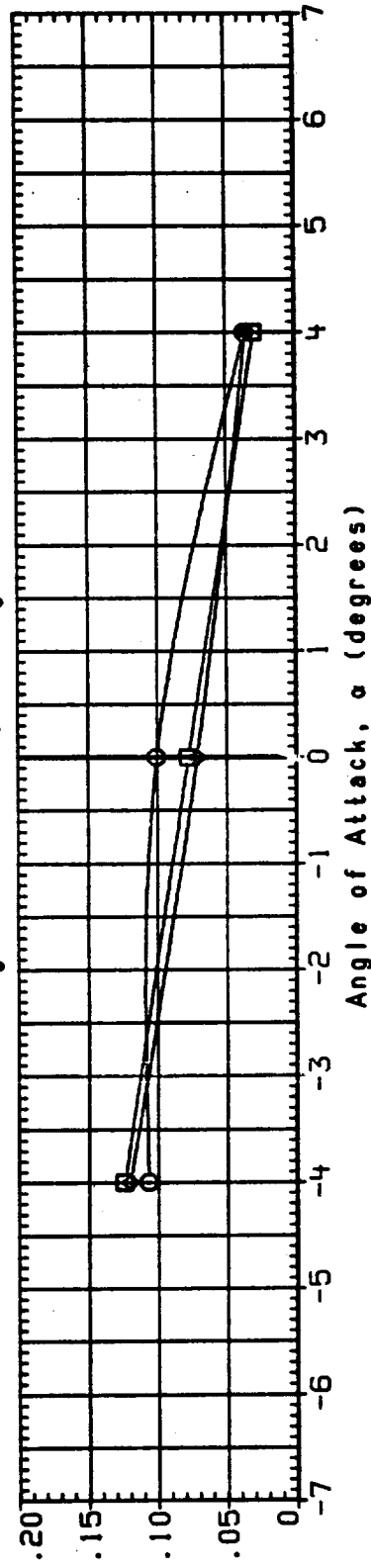
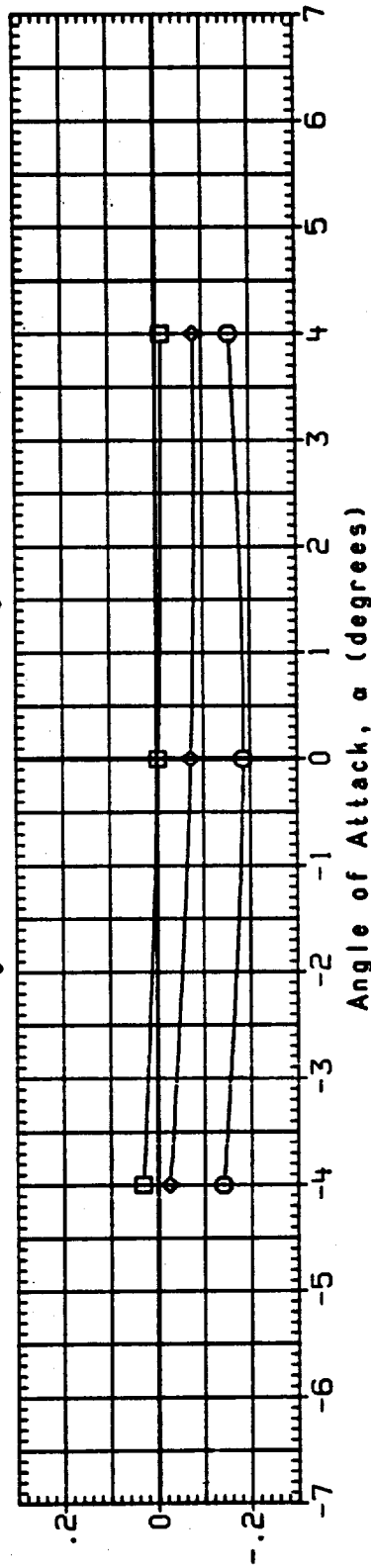
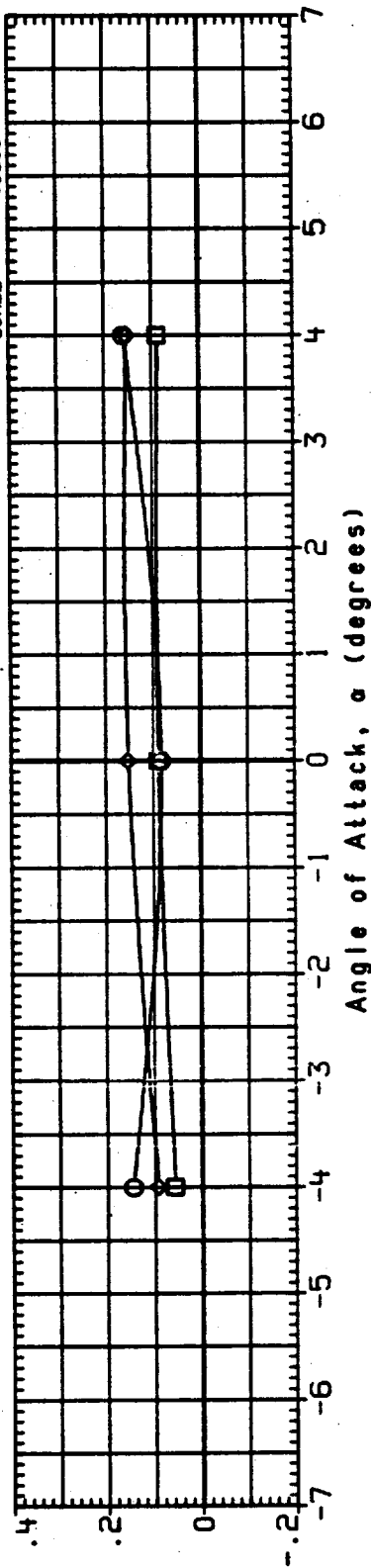


FIGURE 9. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS OFF

13UB11 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RHP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 4.000 IB-ELV 10.000
 08-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XHRRP .0000 IN. XT
 YHRRP .0000 IN. YT
 ZHRRP .0000 IN. ZT
 SCALE .0300

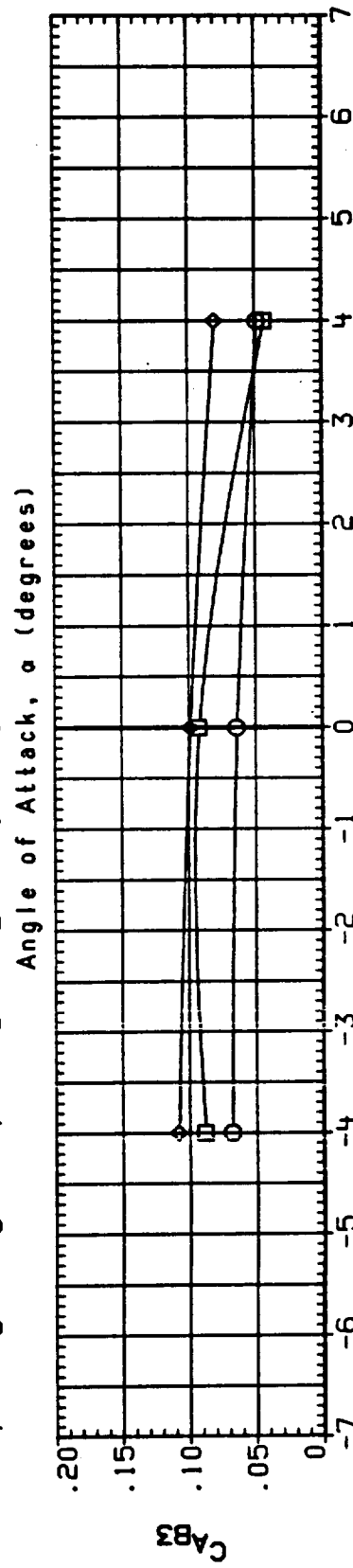
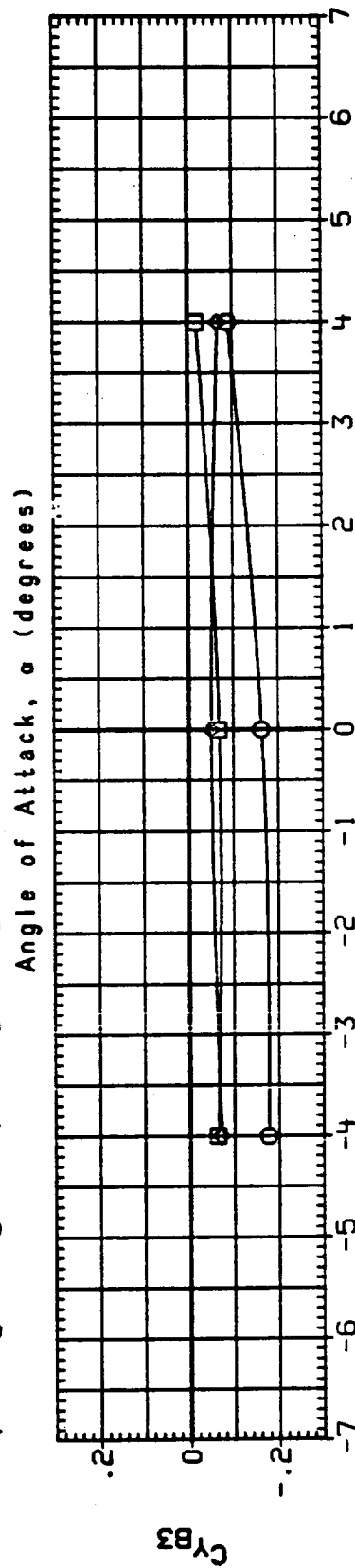
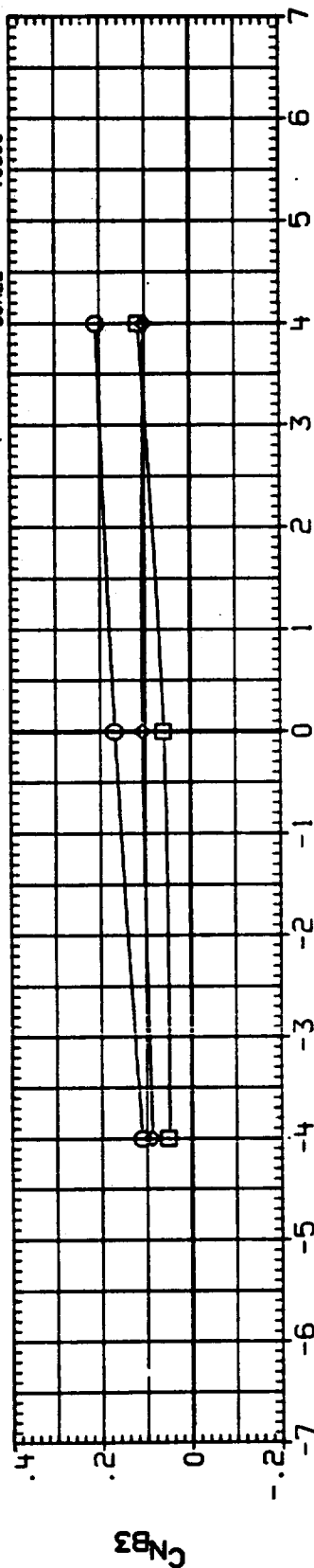


FIGURE 9. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS OFF

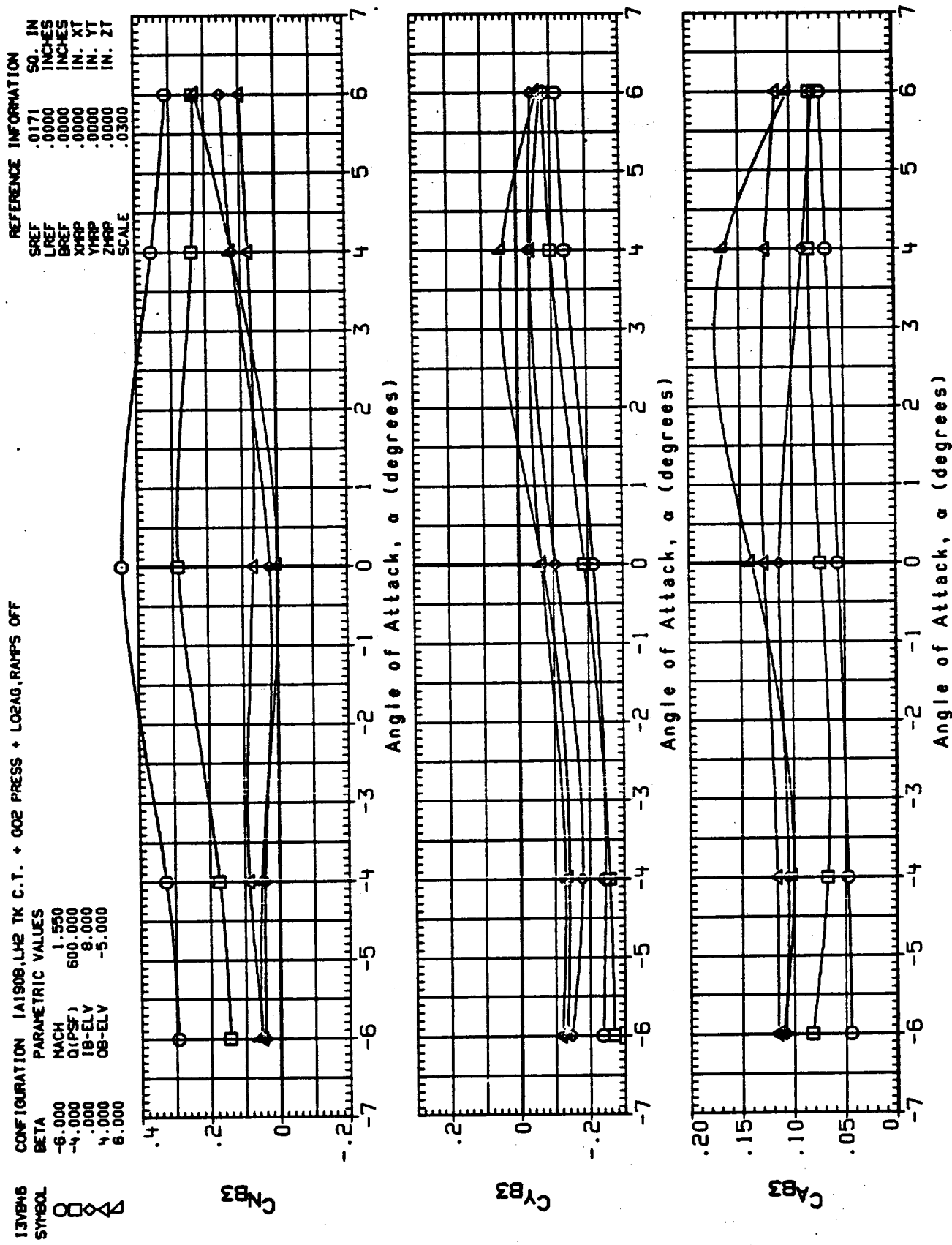


FIGURE 9. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND LO2 ANTIGYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS OFF

13VB+7
SYMBOL
▽
◇
□
○

CONFIGURATION 1A190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

BETA
-6.000
-4.000
.000
4.000
6.000

PARAMETRIC VALUES
MACH 2.000
Q(PSF) 600.000
TB-ELV 8.000
OB-ELV -5.000

REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

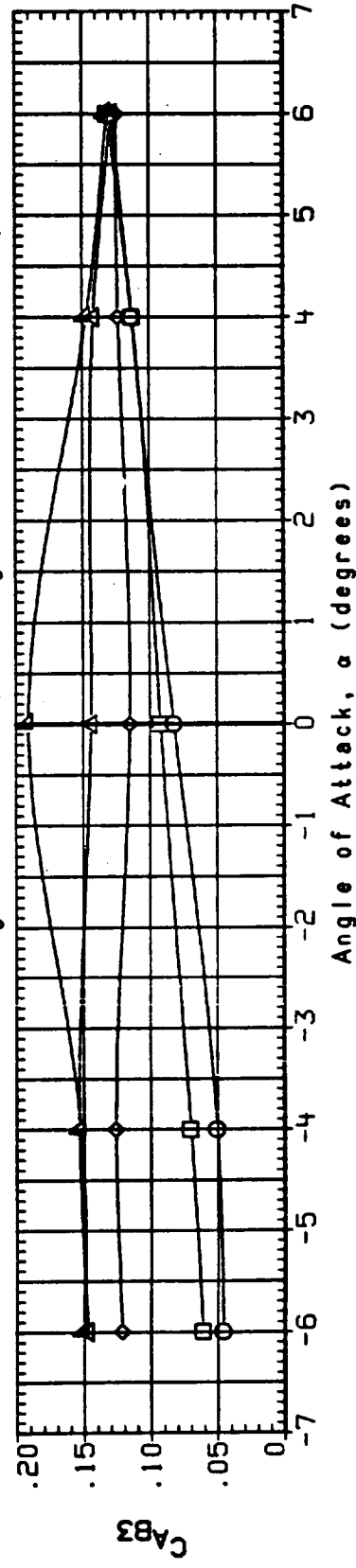
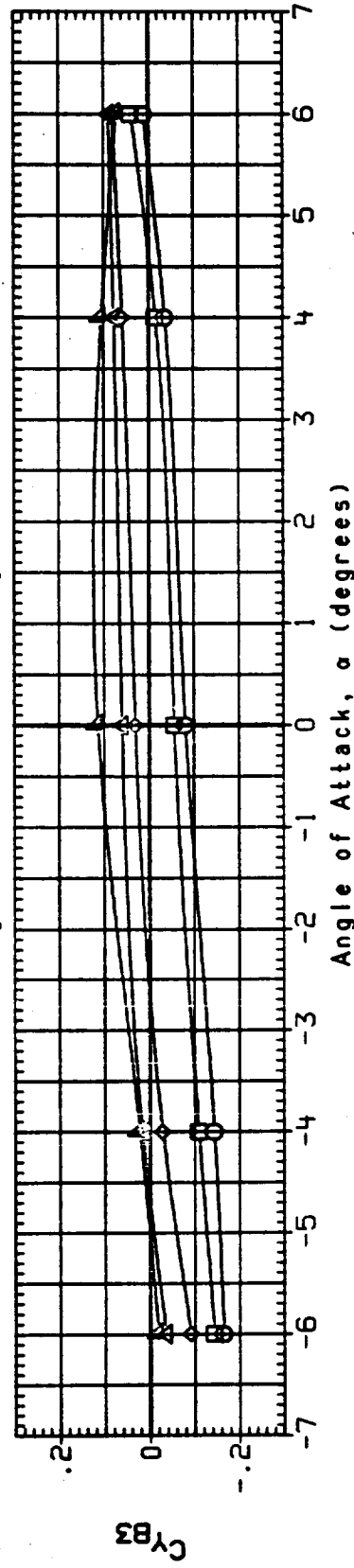
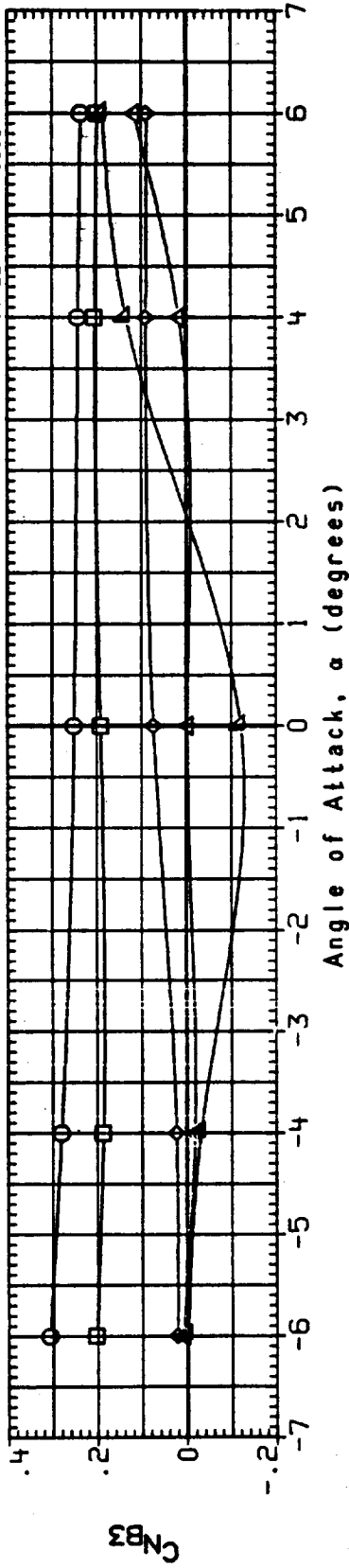


FIGURE 9. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS OFF

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

BETA
-6.000
-4.000
.000
4.000
6.000

PARAMETRIC VALUES
MACH 2.500
Q(PSF) 600.000
IB-ELV 8.000
OB-ELV -5.000

REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

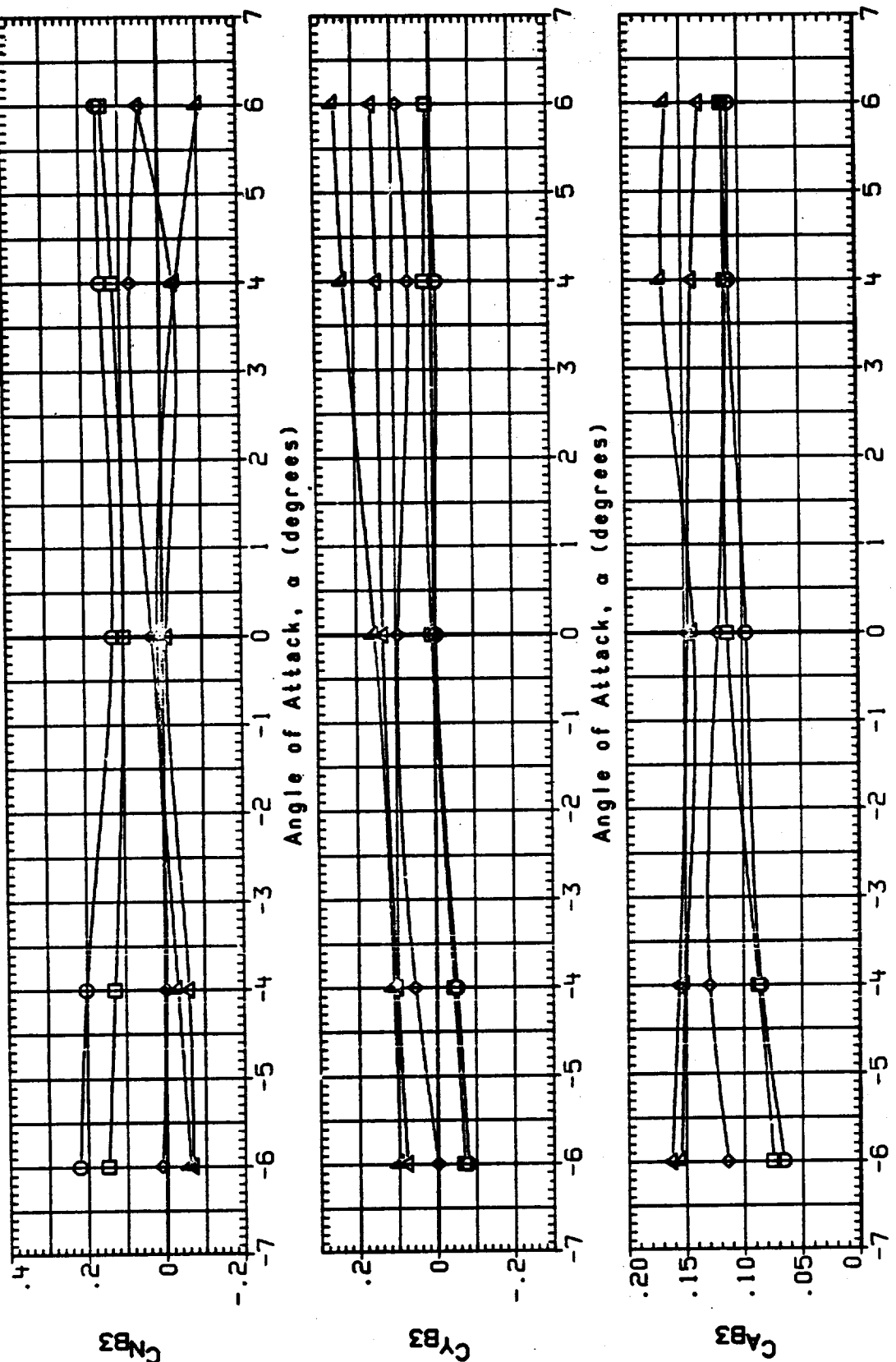


FIGURE 9. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSER LINES COMBINED, XT = 1237.9 TO 1431.7, RAMPS OFF

130802 CONFIGURATION 1A190A, LH2 TK C TRY + 002 P + L02 AG LN, RHP ON

BETA PARAMETRIC VALUES
 -4.000 MACH .600
 .000 18-ELV 10.000
 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XRRP .0000 IN. XT
 YRRP .0000 IN. YT
 ZRRP .0000 IN. ZT
 SCALE .0300

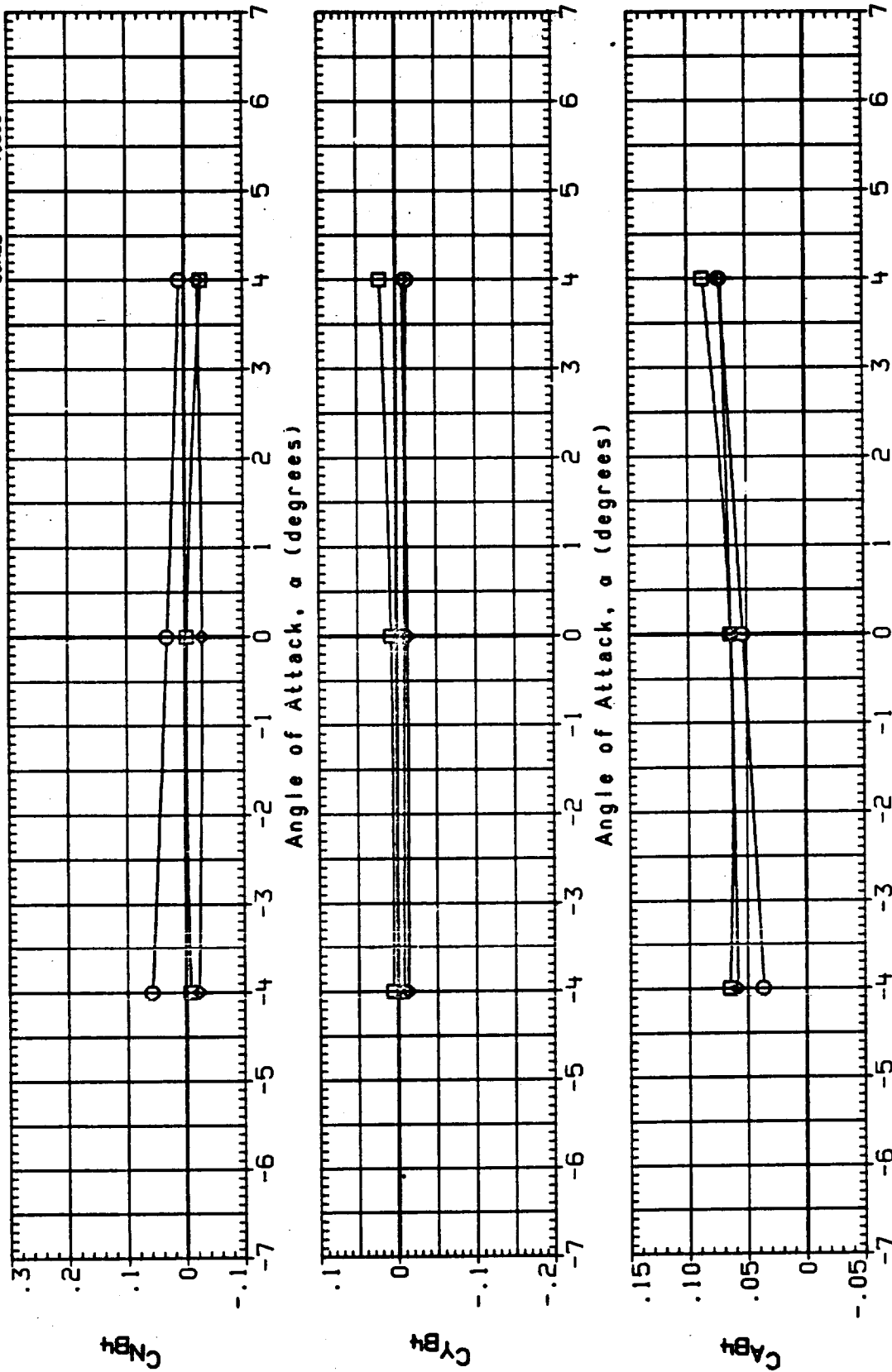


FIGURE 10. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS ON

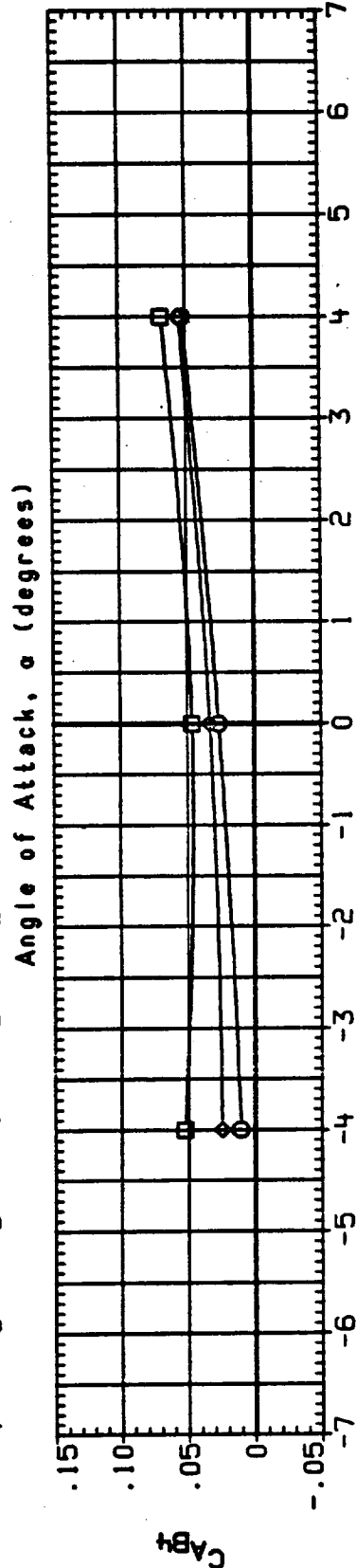
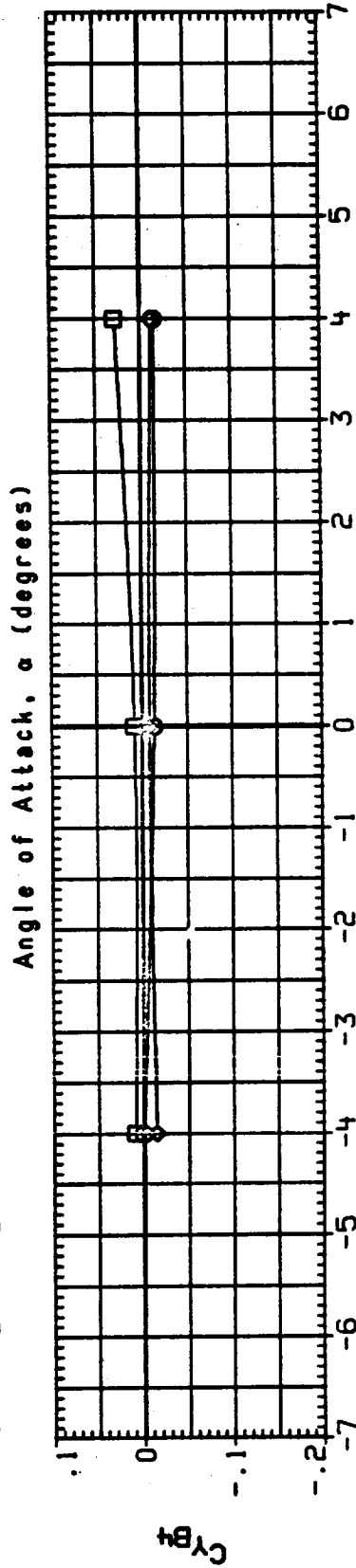
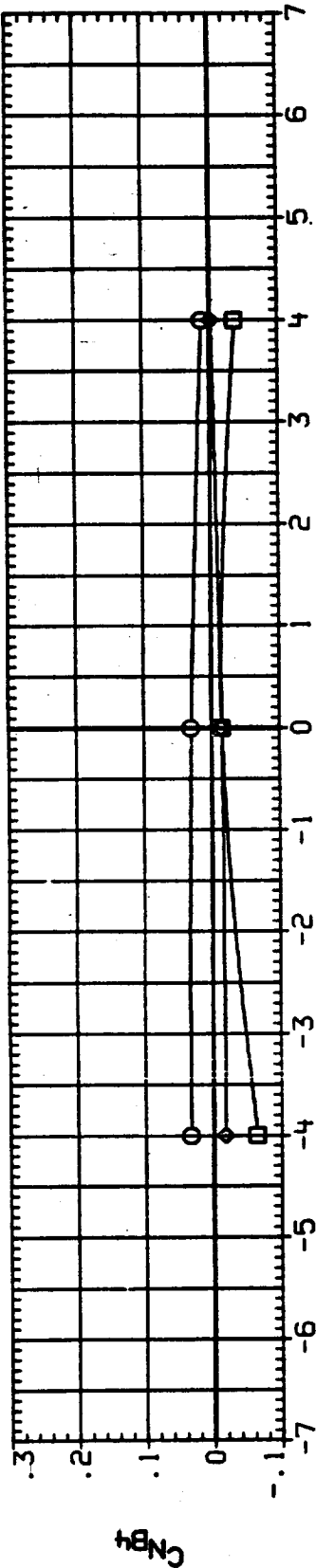
13UB03
SYMBOL
◇

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP ON

BETA
-4.000
4.000
MACH
10.000
08-ELV
9.000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)

FIGURE 10. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS ON

13UB04 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RWP ON

BETA PARAMETRIC VALUES
 -4.000 MACH 1.100
 .000 IB-ELV 10.000
 4.000 OB-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

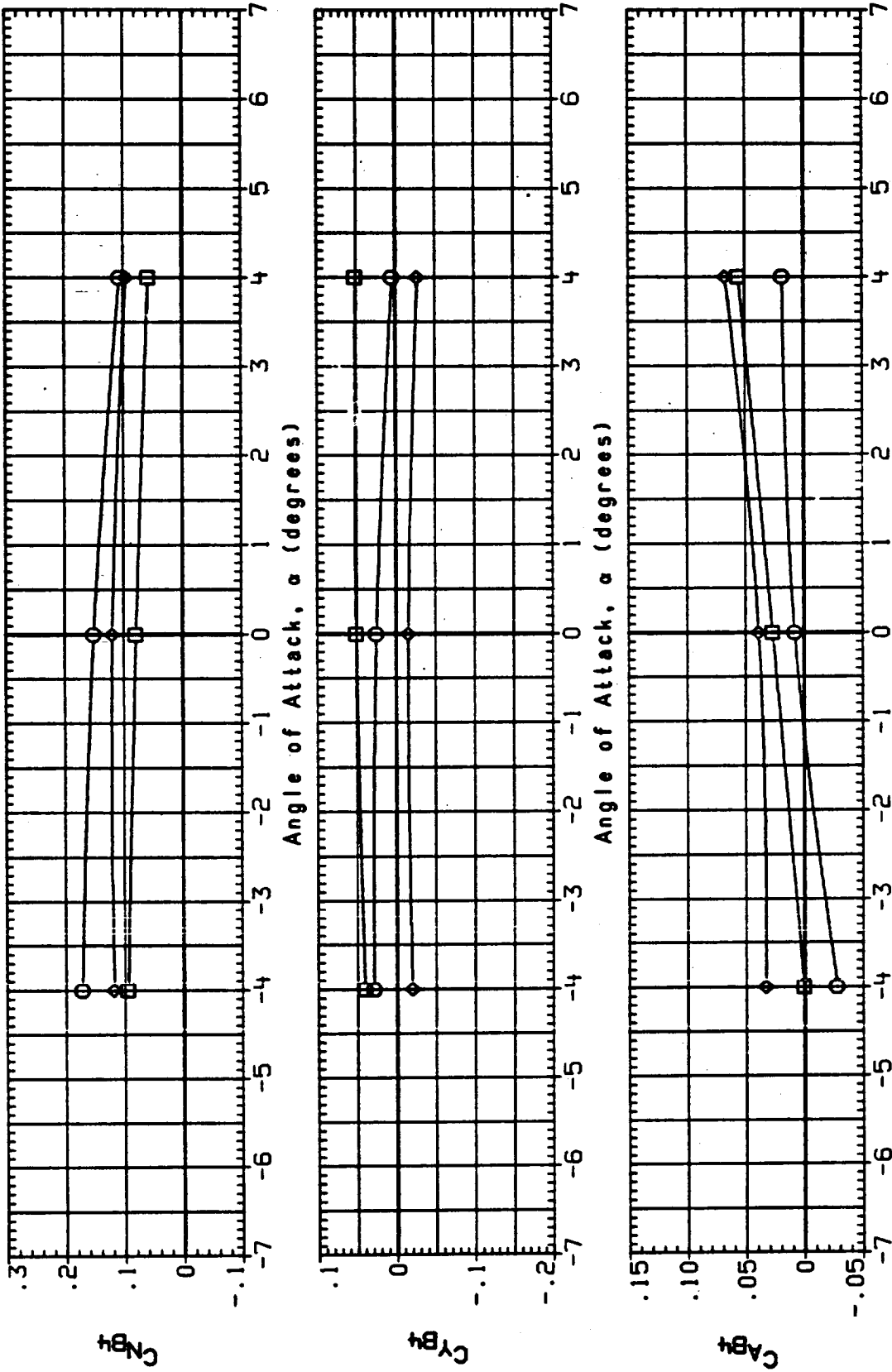


FIGURE 10. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND LO2 ANTIEYSEY LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS ON

13J803 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 A0 LN. RWP ON

BETA PARAMETRIC VALUES
 -4.000 MACH 1.250
 .000 IB-ELV 10.000
 4.000 OB-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

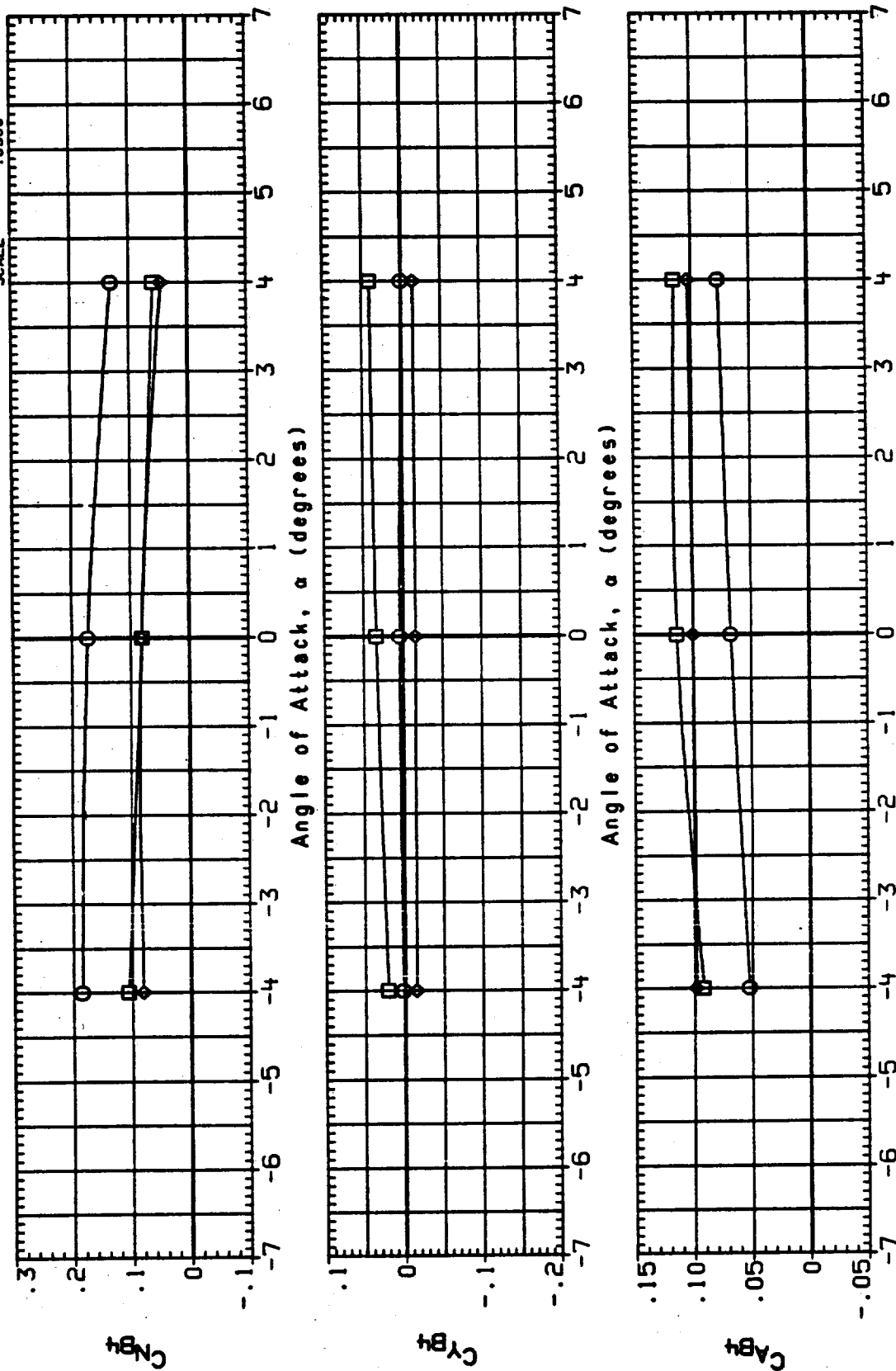


FIGURE 10. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS ON

13UB06 CONFIGURATION 1A190A, LH2 TK C TRY + 002 P + L02 AG LN. RHP ON

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 .000 LB-ELV 10.000
 4.000 OB-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

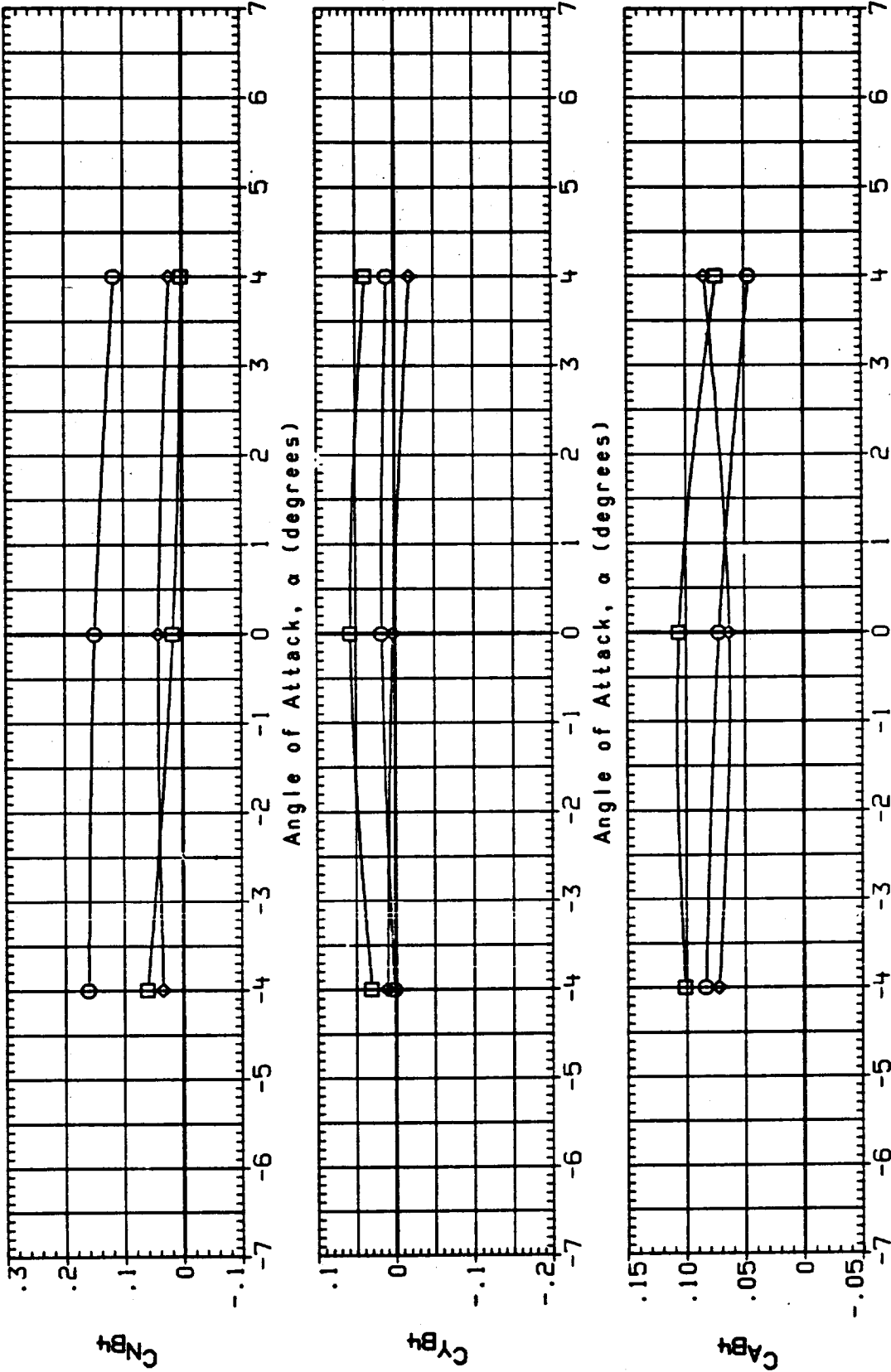


FIGURE 10. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS ON

13V843
SYMBOL

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS ON

BETA
-6.000
-4.000
.000
4.000
6.000

PARAMETRIC VALUES
MACH 1.550
Q(PSF) 600.000
18-ELV 8.000
08-ELV -5.000

REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

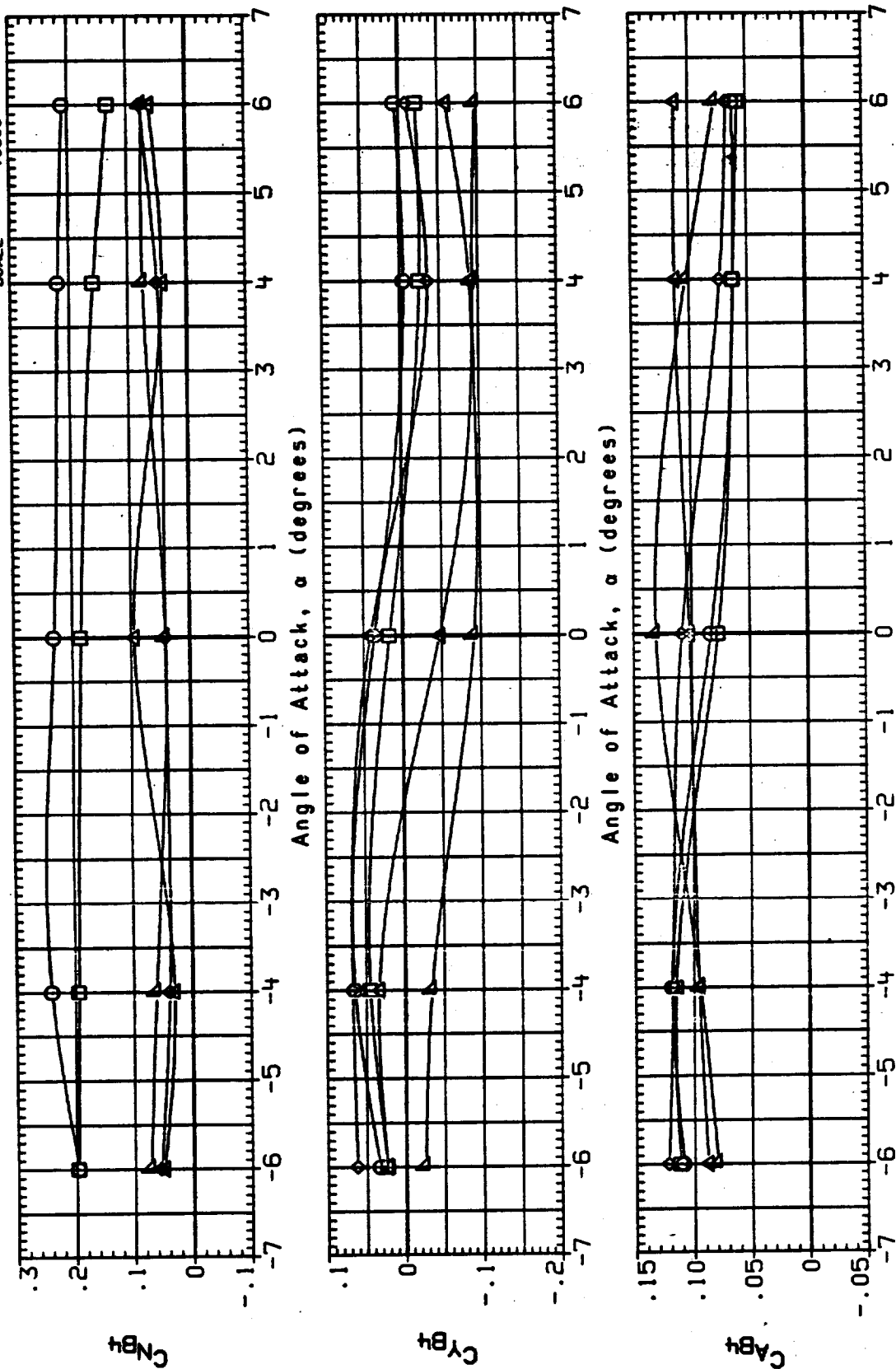


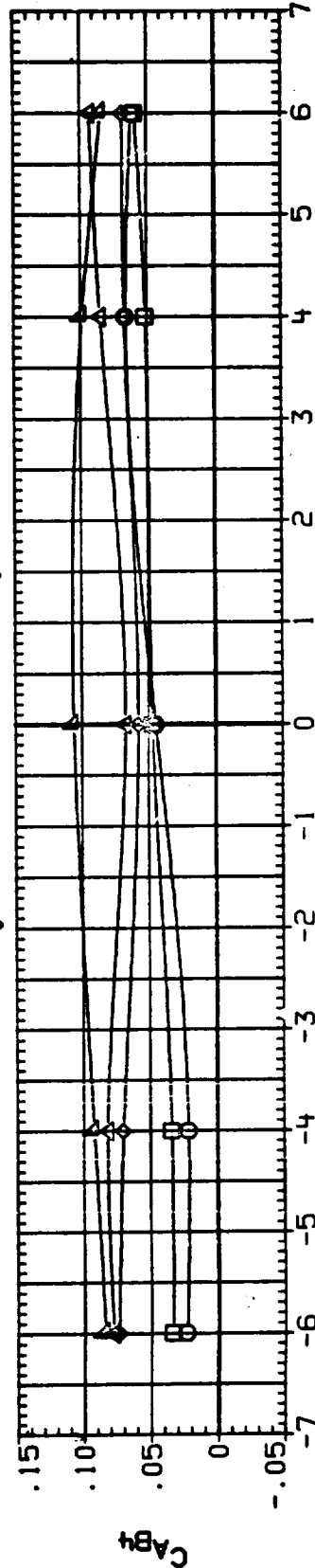
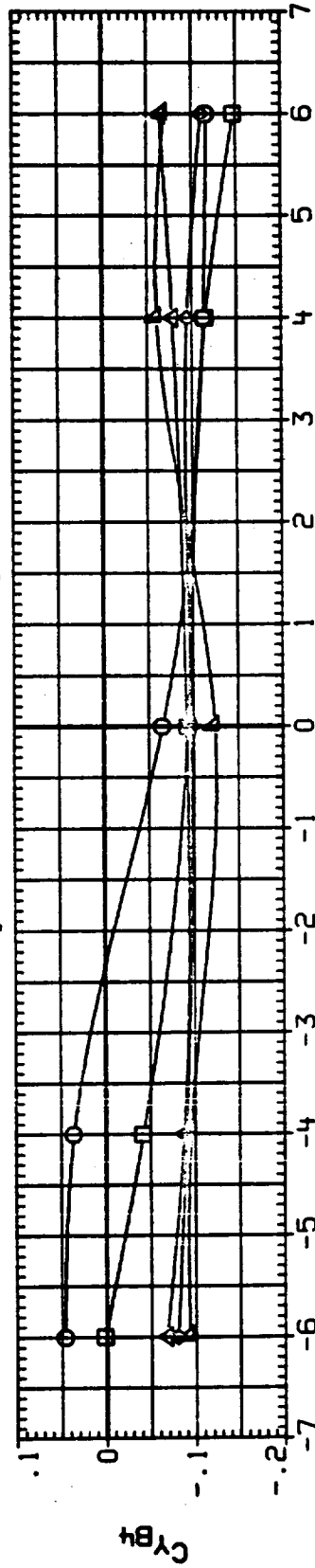
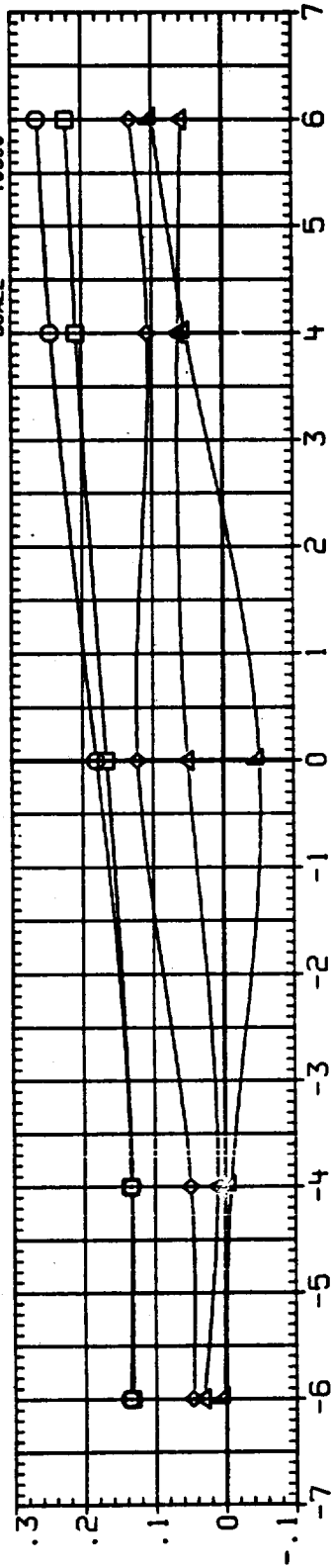
FIGURE 10. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS ON

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + LOG20, RAMPS ON

13VBH4
SYMBOL

PARAMETRIC VALUES
BETA MACH 2.000
-6.000 0.1PSF 600.000
-4.000 18-ELV 8.000
4.000 08-ELV -5.000
6.000

REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XRRP .0000 IN. XT
YRRP .0000 IN. YT
ZRRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)

FIGURE 10. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND LO2 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS ON

13V845
SYMBOL

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + LO2AG, RAMPS ON

BETA

PARAMETRIC VALUES	
MACH	2.500
Q(PSF)	600.000
IB-ELV	8.000
OB-ELV	-5.000
6.000	

REFERENCE INFORMATION

	SO. IN
SREF	.0171
LREF	.0000
BREF	.0000
XMRP	.0000
YMRP	.0000
ZMRP	.0000
SCALE	.0300

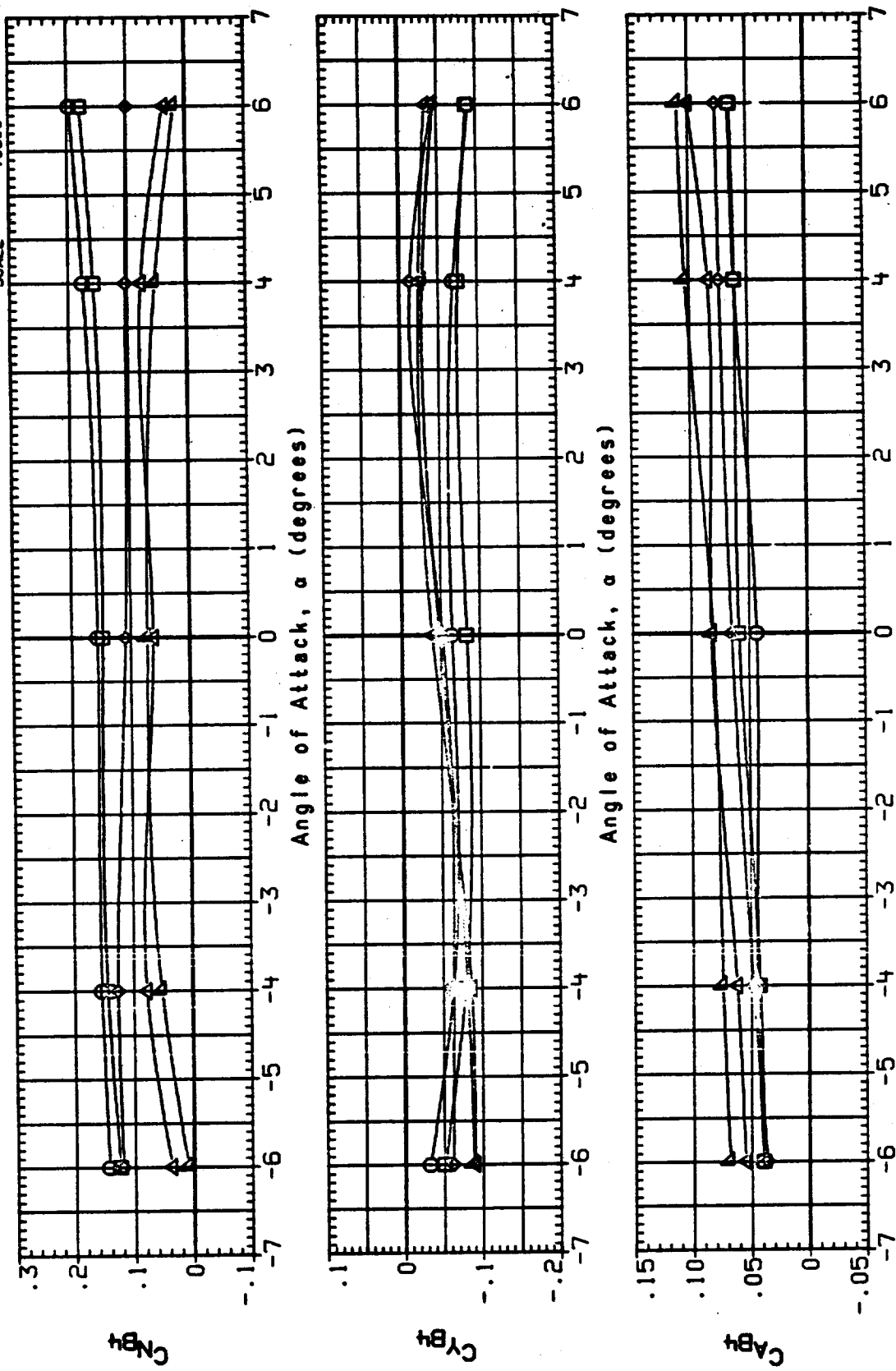


FIGURE 10. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND LO2 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS ON

134807 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

SYMBOL BETA PARAMETRIC VALUES
 -4.000 MACH .500
 .000 IB-ELV 10.000
 4.000 OB-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

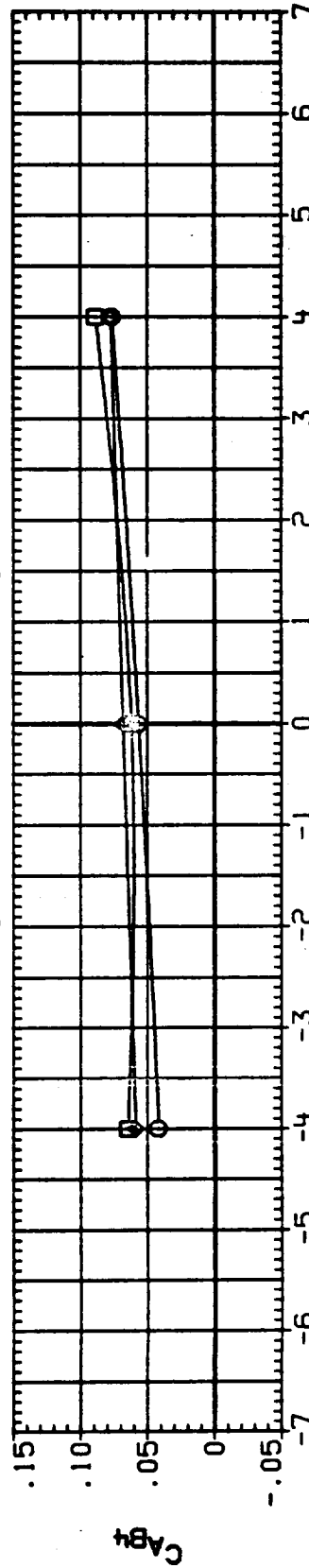
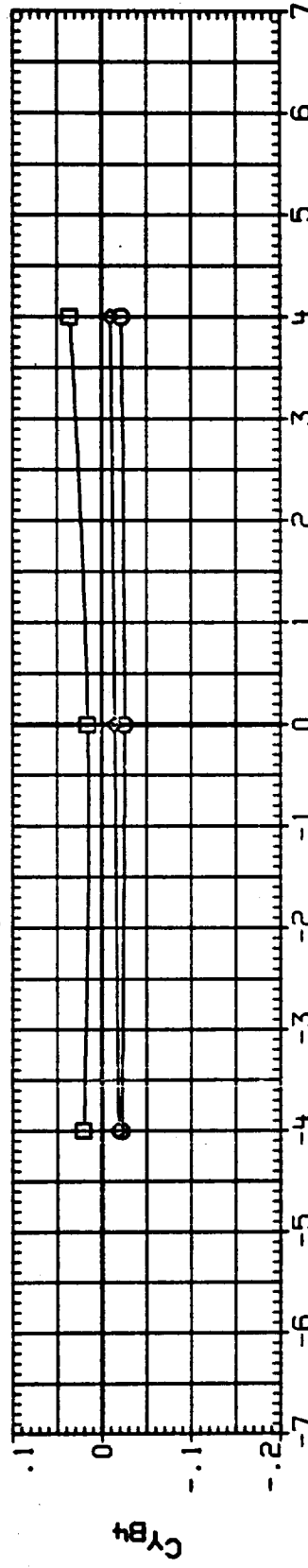
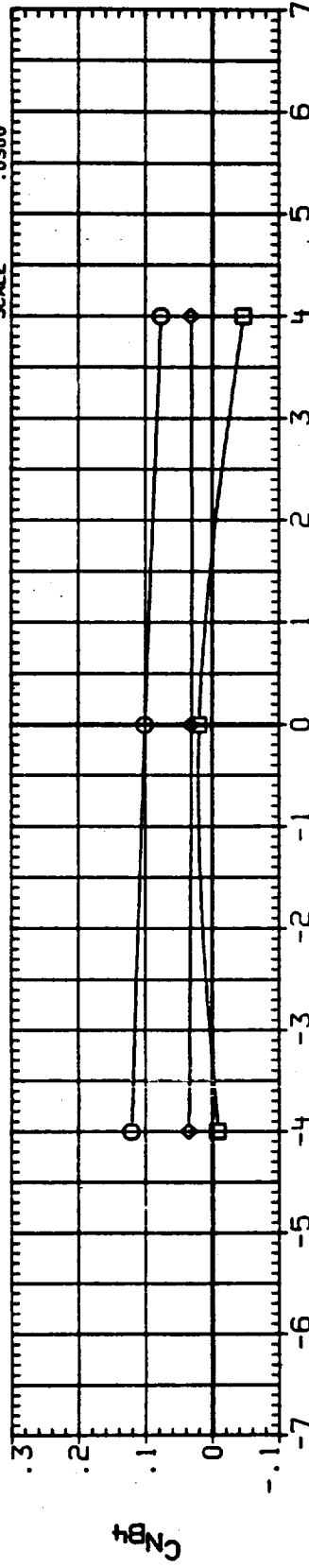


FIGURE 11. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS OFF

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

13UB08
SYMBOL

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH .900
IB-ELV 10.000
OB-ELV 9.000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XRRP .0000 IN. XT
YRRP .0000 IN. YT
ZRRP .0000 IN. ZT
SCALE .0300

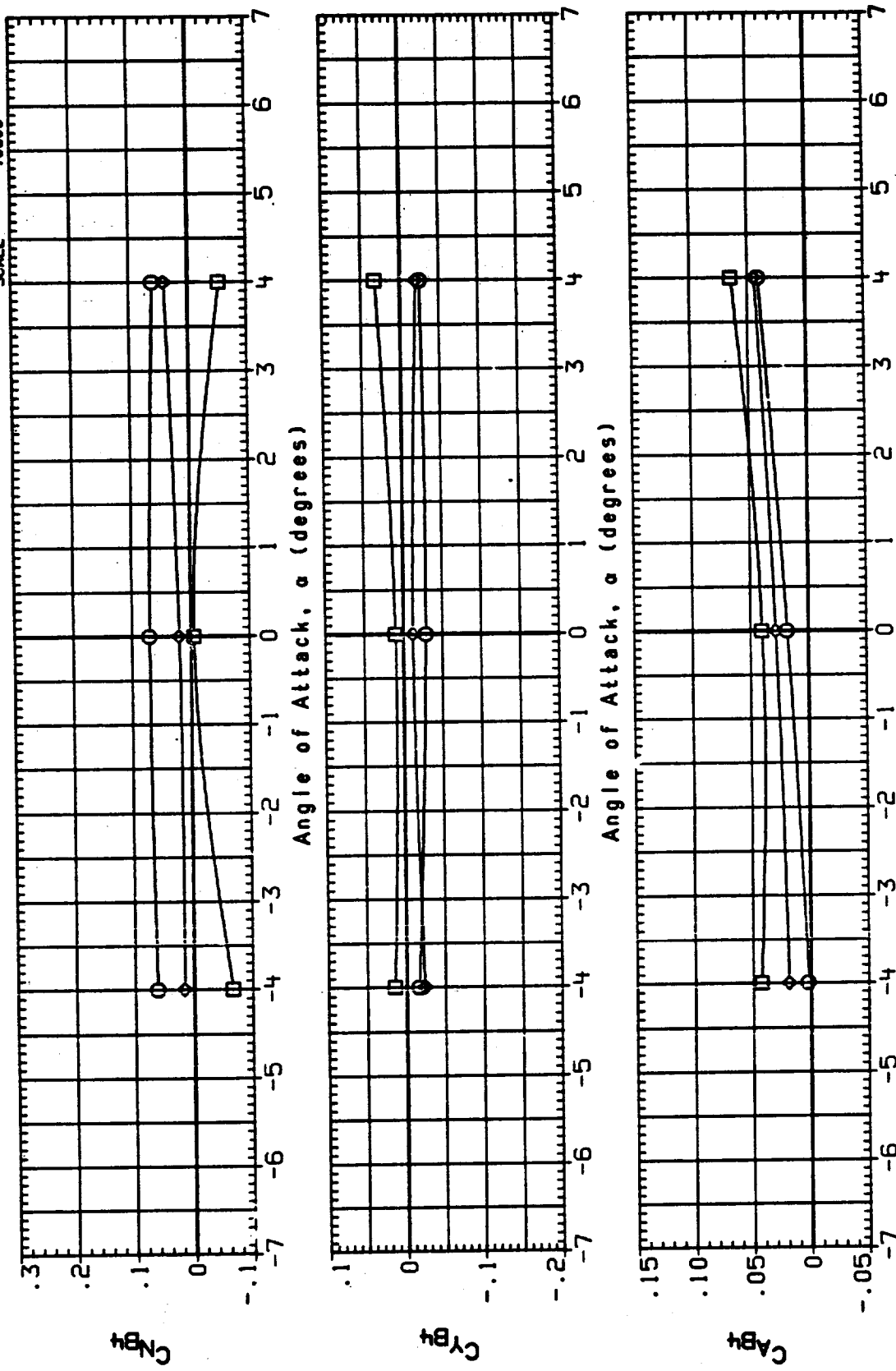


FIGURE 11. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS PAGE 58

13UB09 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RWP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.100
 .000 18-ELV 10.000
 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

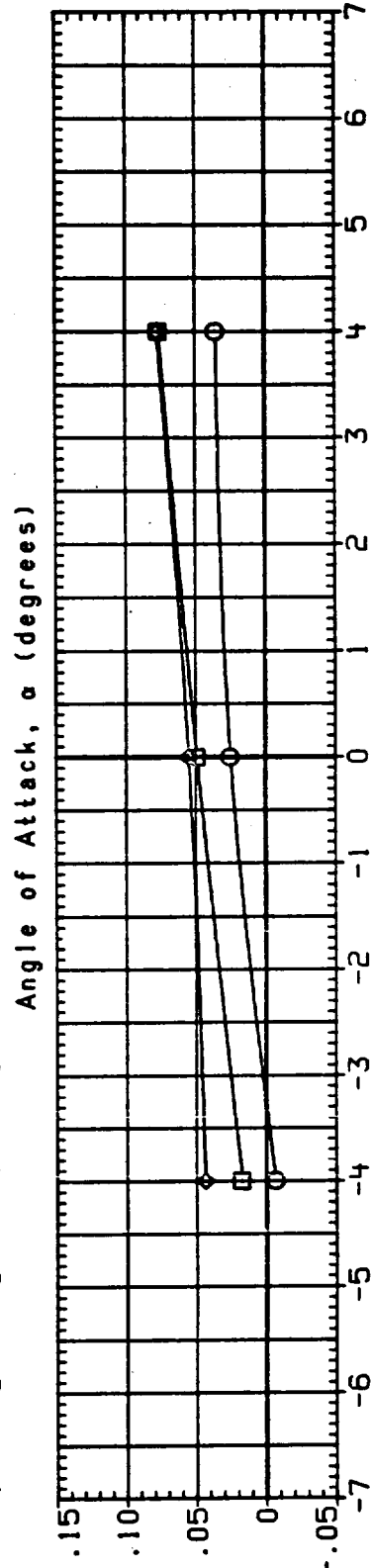
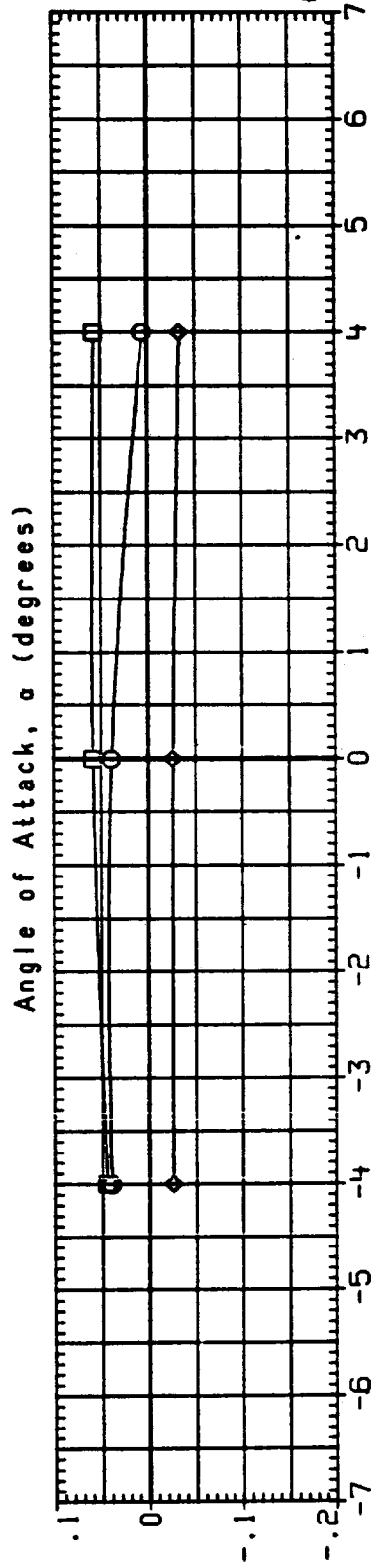
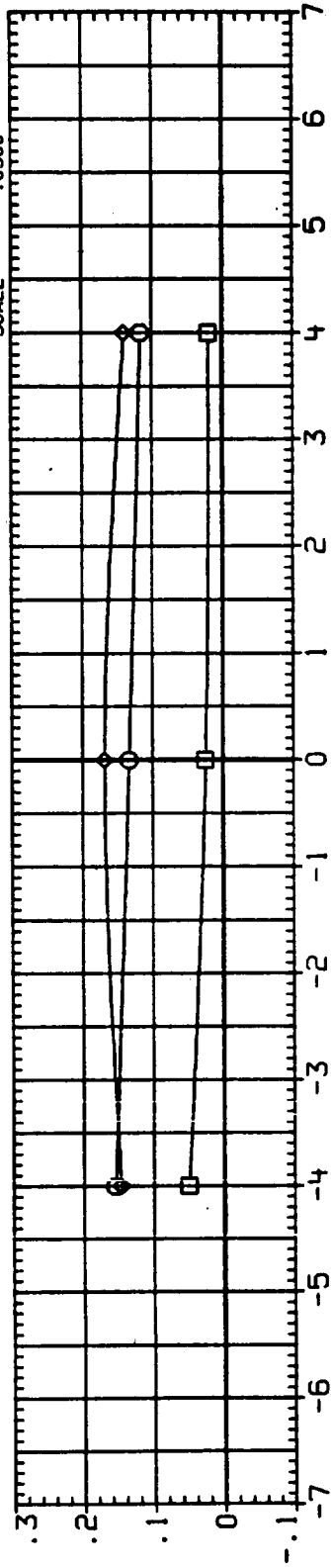


FIGURE 11. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS OFF

13J810 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RWP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.250
 .000 18-ELV 10.000
 4.000 08-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

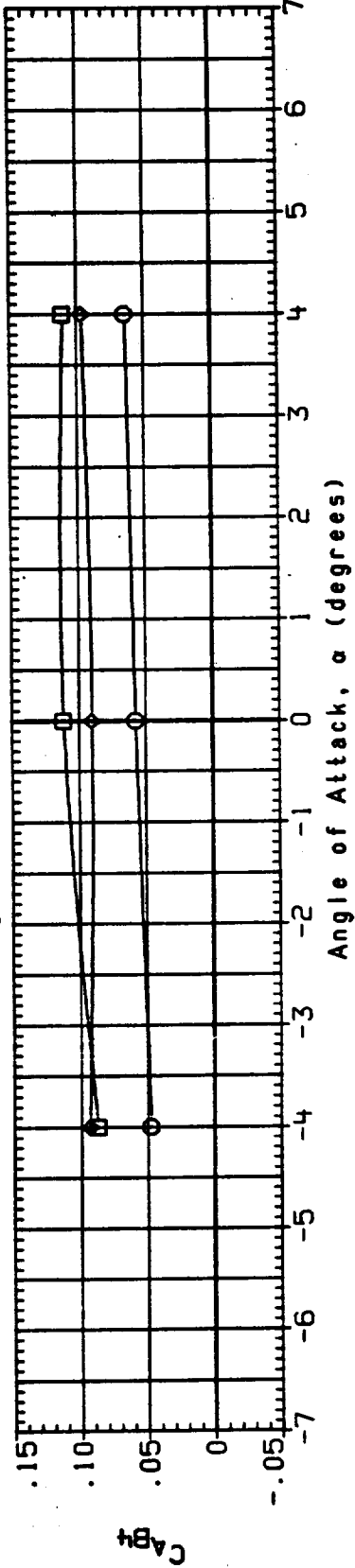
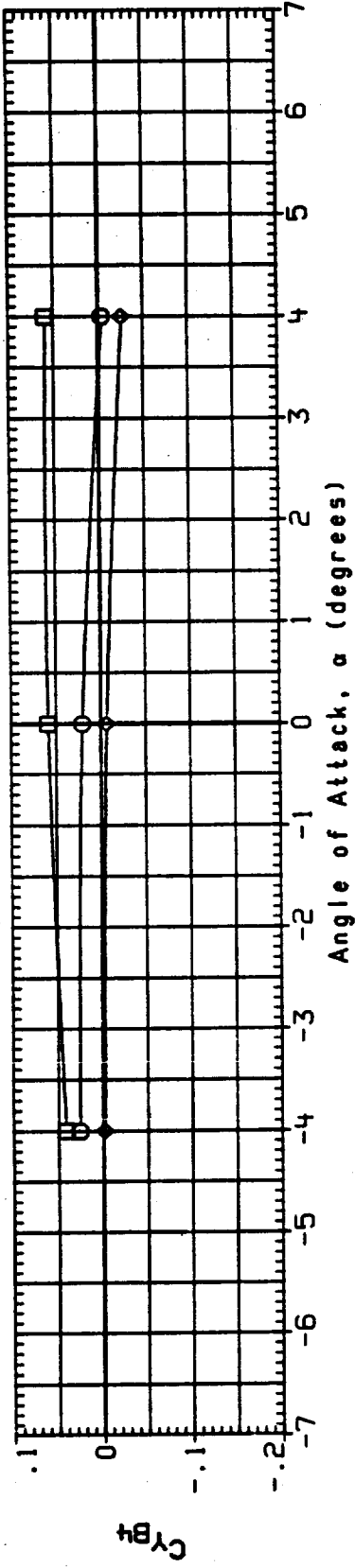
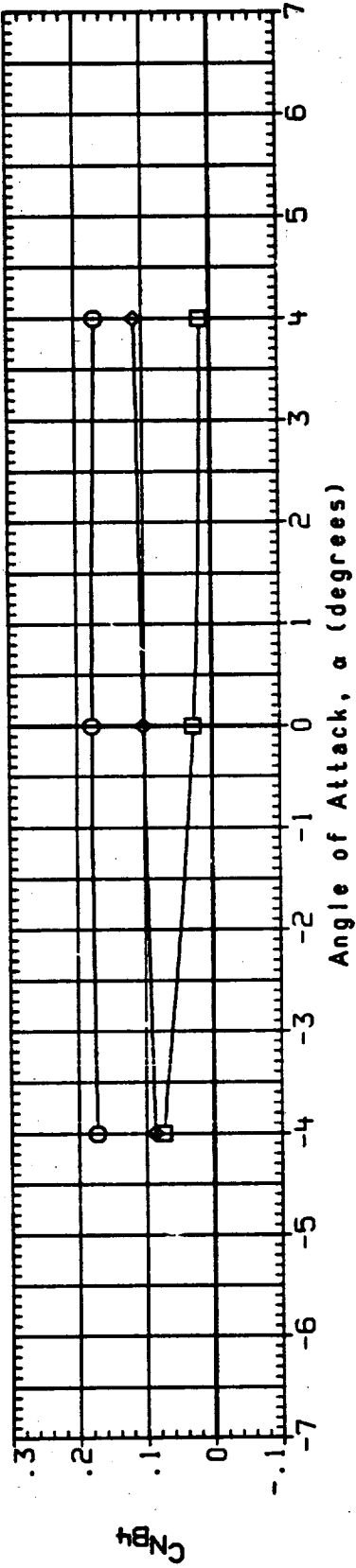


FIGURE 11. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS OFF

13JB11 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 .000 IB-ELV 10.000
 4.000 OB-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XHRP .0000 IN. XT
 YHRP .0000 IN. YT
 ZHRP .0000 IN. ZT
 SCALE .0300

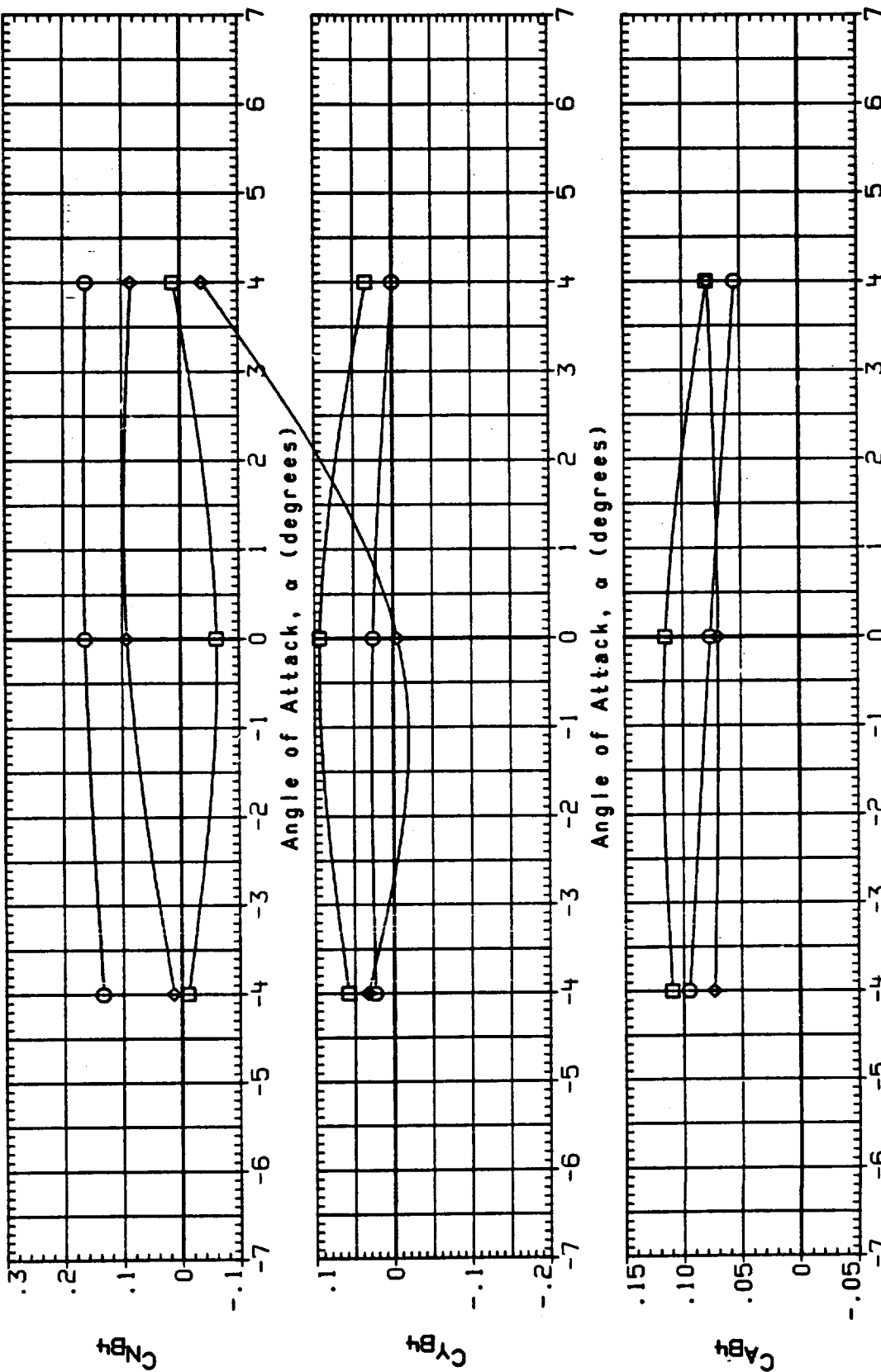


FIGURE 11. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS OFF

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

137646

BETA	PARAMETRIC VALUES
-6.000	MACH 1.550
-4.000	Q(PSF) 600.000
.000	IB-ELV 8.000
4.000	OB-ELV -5.000
6.000	

REFERENCE INFORMATION

SREF	.0171	SO. IN
LREF	.0000	INCHES
BREF	.0000	INCHES
XMRP	.0000	IN. XT
YMRP	.0000	IN. YT
ZMRP	.0000	IN. ZT
SCALE	.0300	

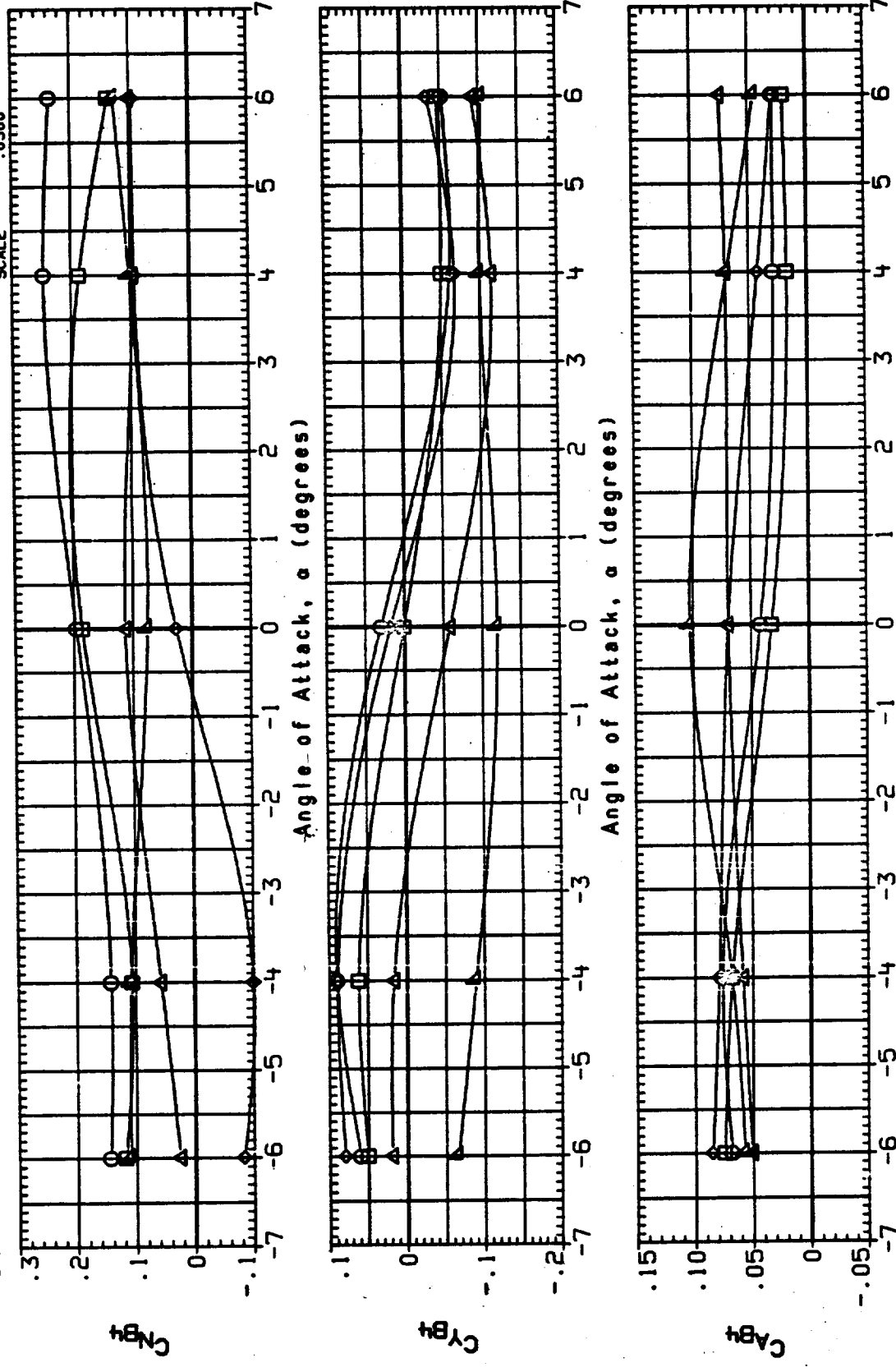


FIGURE 11. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS OFF

13V847
SYMBOL

PARAMETRIC VALUES

-6.000	MACH	2.000
-4.000	Q(PSF)	600.000
.000	IB-ELV	8.000
4.000	OB-ELV	-5.000

REFERENCE INFORMATION

	SQ. IN
SREF	.0171
LRFF	.0000
BREF	.0000
XRFP	.0000
YRFP	.0000
ZRFP	.0000

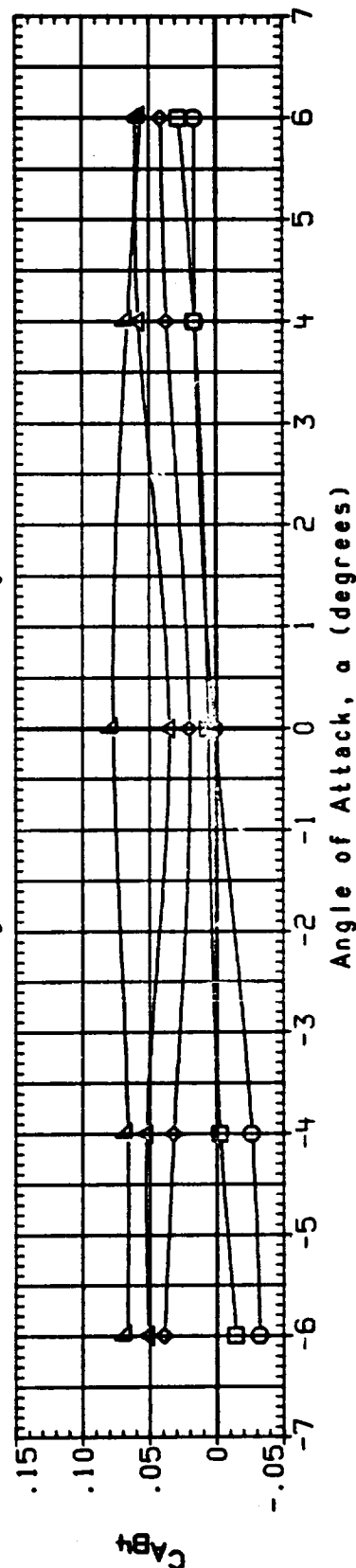
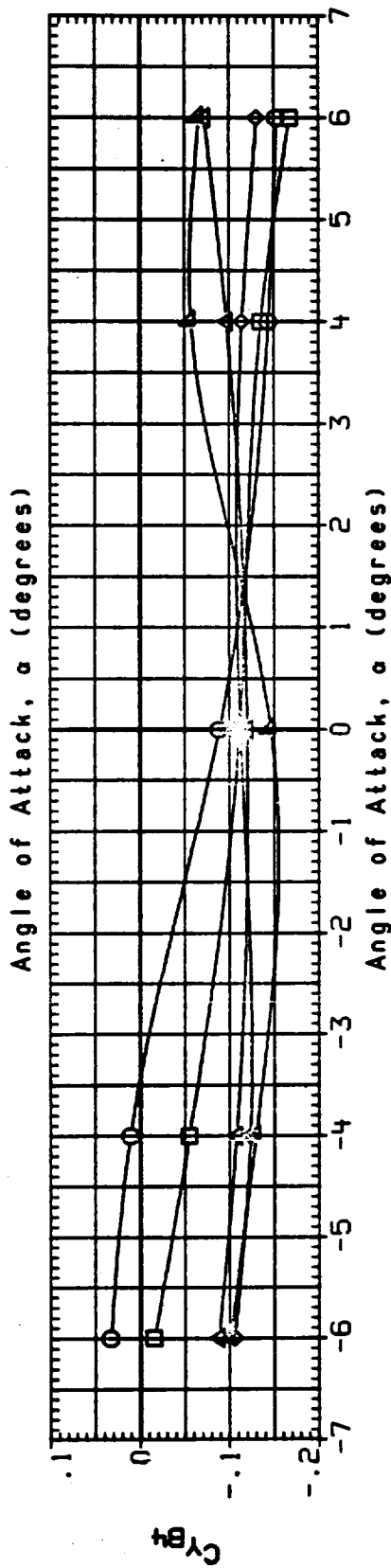
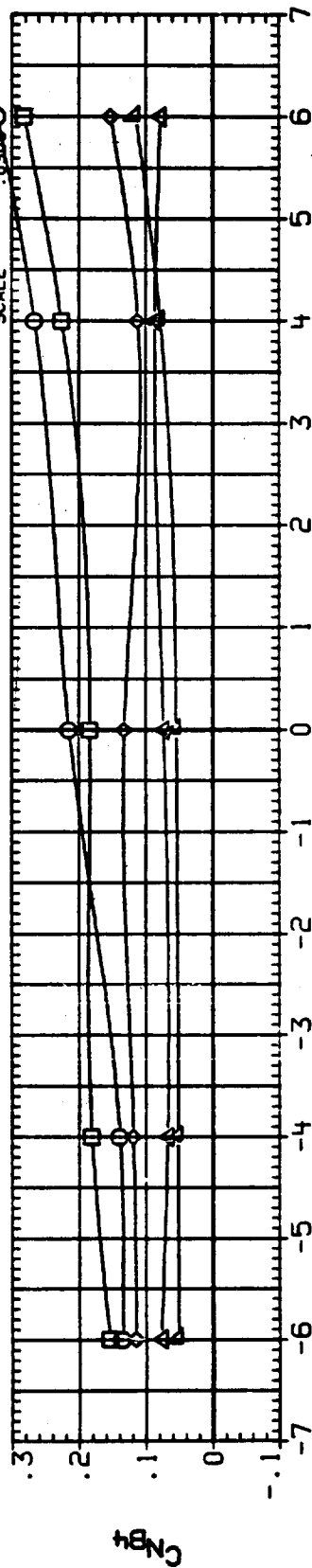


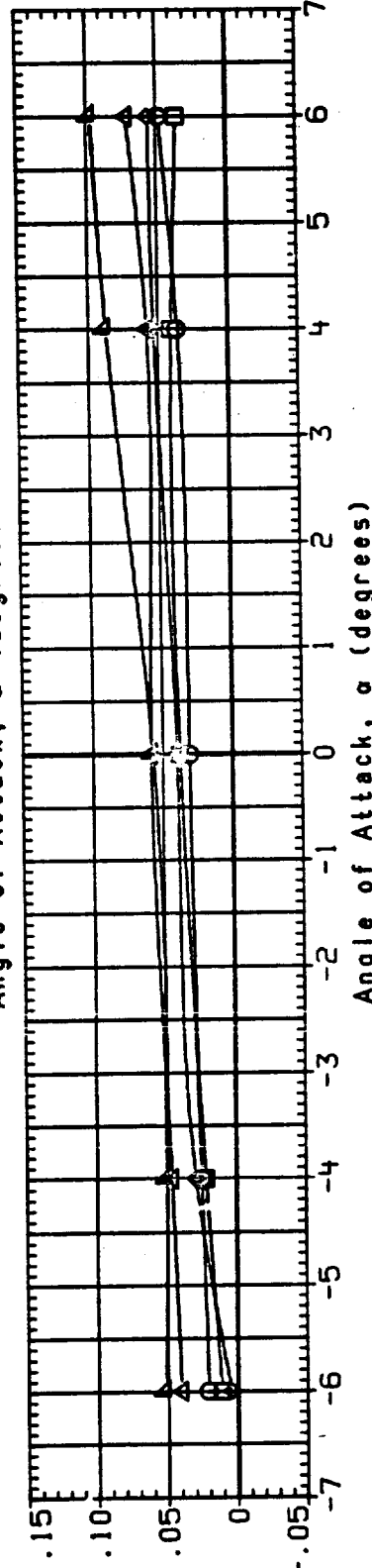
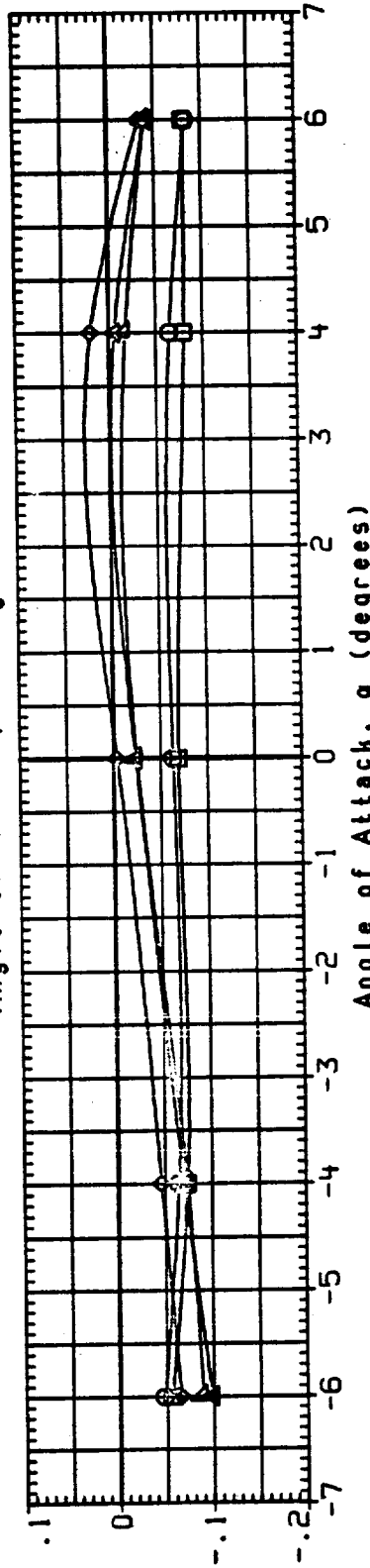
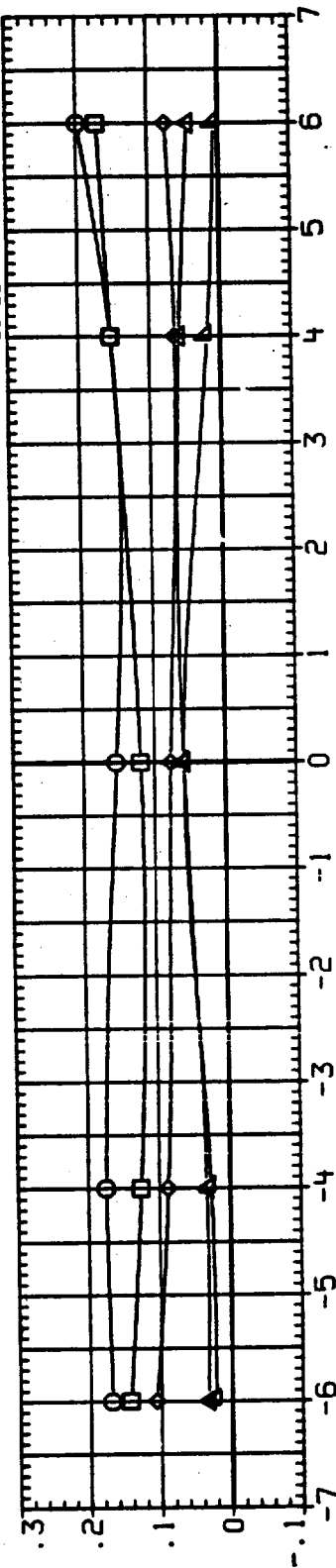
FIGURE 11. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, GO2 PRESSURE, AND LO2 ANTIGEYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS OFF PAGE

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + LO2AG, RAMPS OFF

BETA
-6.000
-4.000
.000
4.000
6.000

PARAMETRIC VALUES
MACH 2.500
Q(PSF) 600.000
IB-ELV 8.000
OB-ELV -5.000

REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XPRP .0000 IN. XT
YPRP .0000 IN. YT
ZPRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)

FIGURE 11. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND LO2 ANTIGYSER LINES COMBINED, XT = 1431.7 TO 1625.5, RAMPS OFF

13UC02
SYMBOL

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RWP ON

BETA	PARAMETRIC VALUES
-4.000	MACH .600
.000	IB-ELV 10.000
4.000	OB-ELV 9.000

REFERENCE INFORMATION

SREF	SO. IN.
LREF	.0171 INCHES
BREF	.0000 INCHES
XMRP	.0000 IN. XT
YMRP	.0000 IN. YT
ZMRP	.0000 IN. ZT
SCALE	.0300

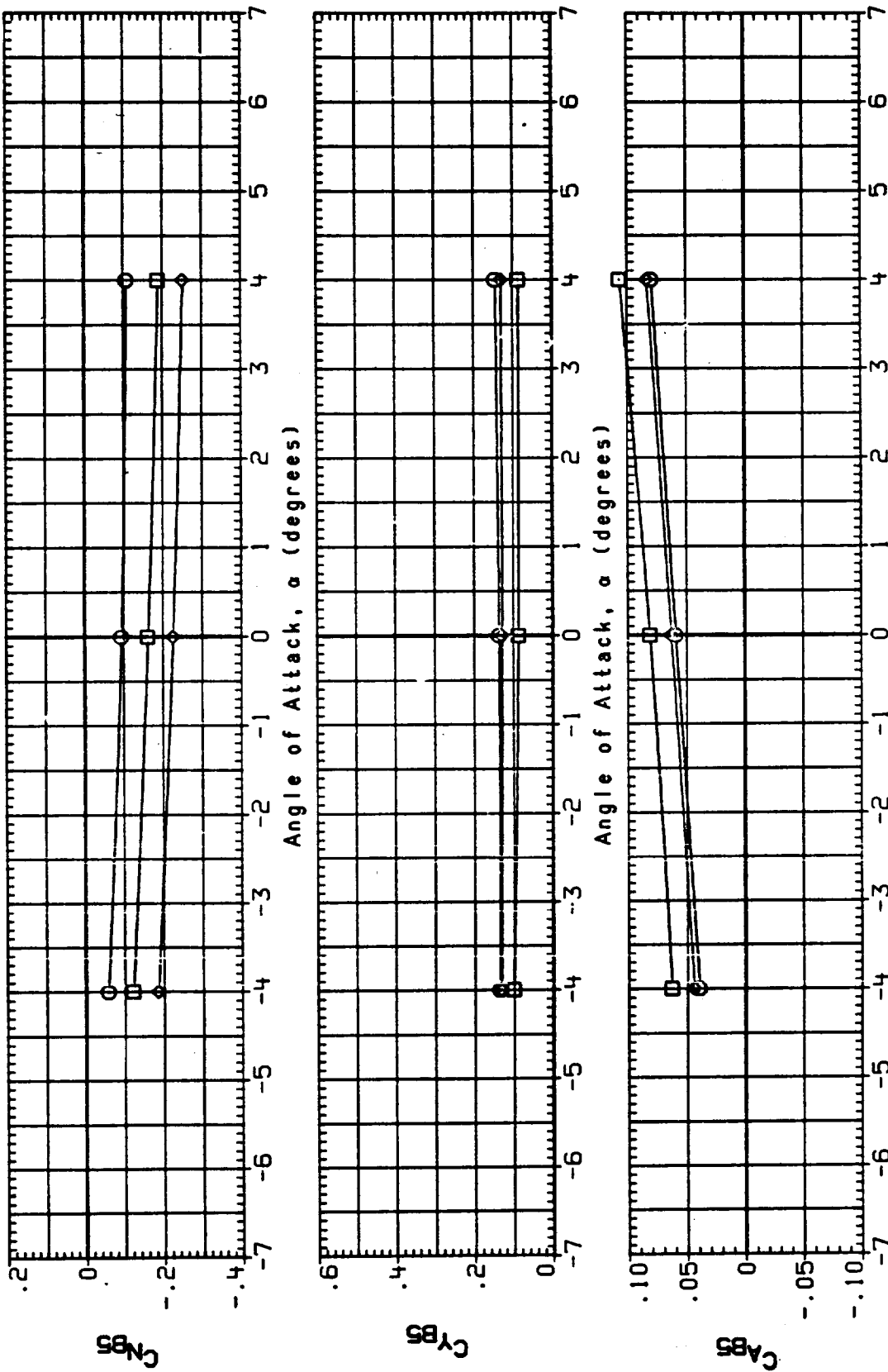


FIGURE 12. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS ON

13UC03 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP ON

SYMBOL \square \diamond
 BETA
 -4.000 MACH .900
 4.000 18-ELV 10.000
 9.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XPRP .0000 IN. XT
 YPRP .0000 IN. YT
 ZPRP .0000 IN. ZT
 SCALE .0300

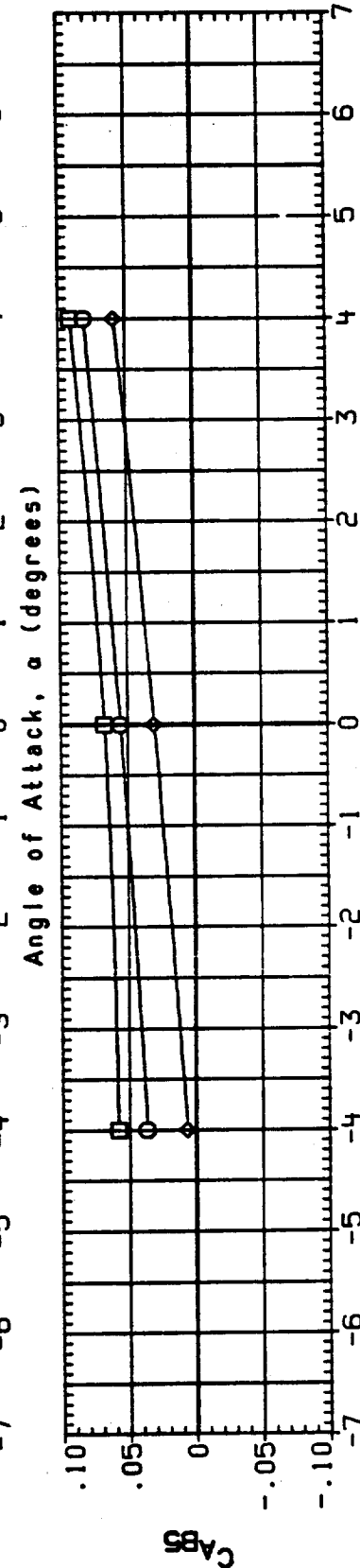
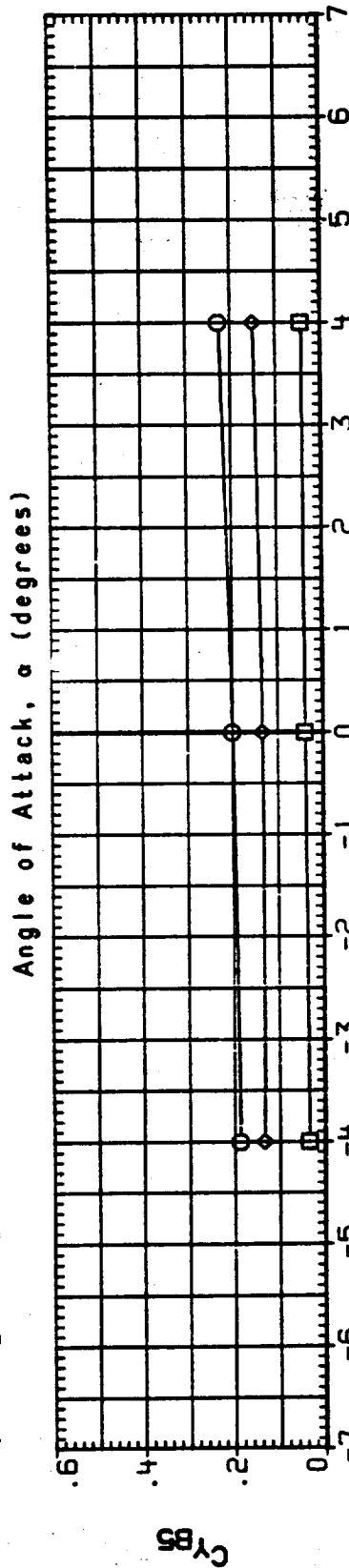
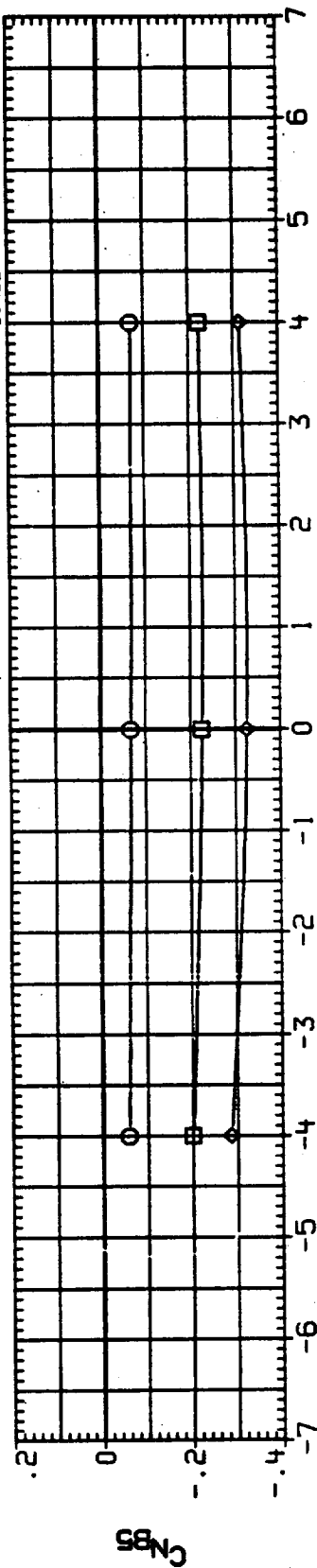


FIGURE 12. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS ON

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RWP ON

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH 1.100
IB-ELV 10.000
OB-ELV 9.000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

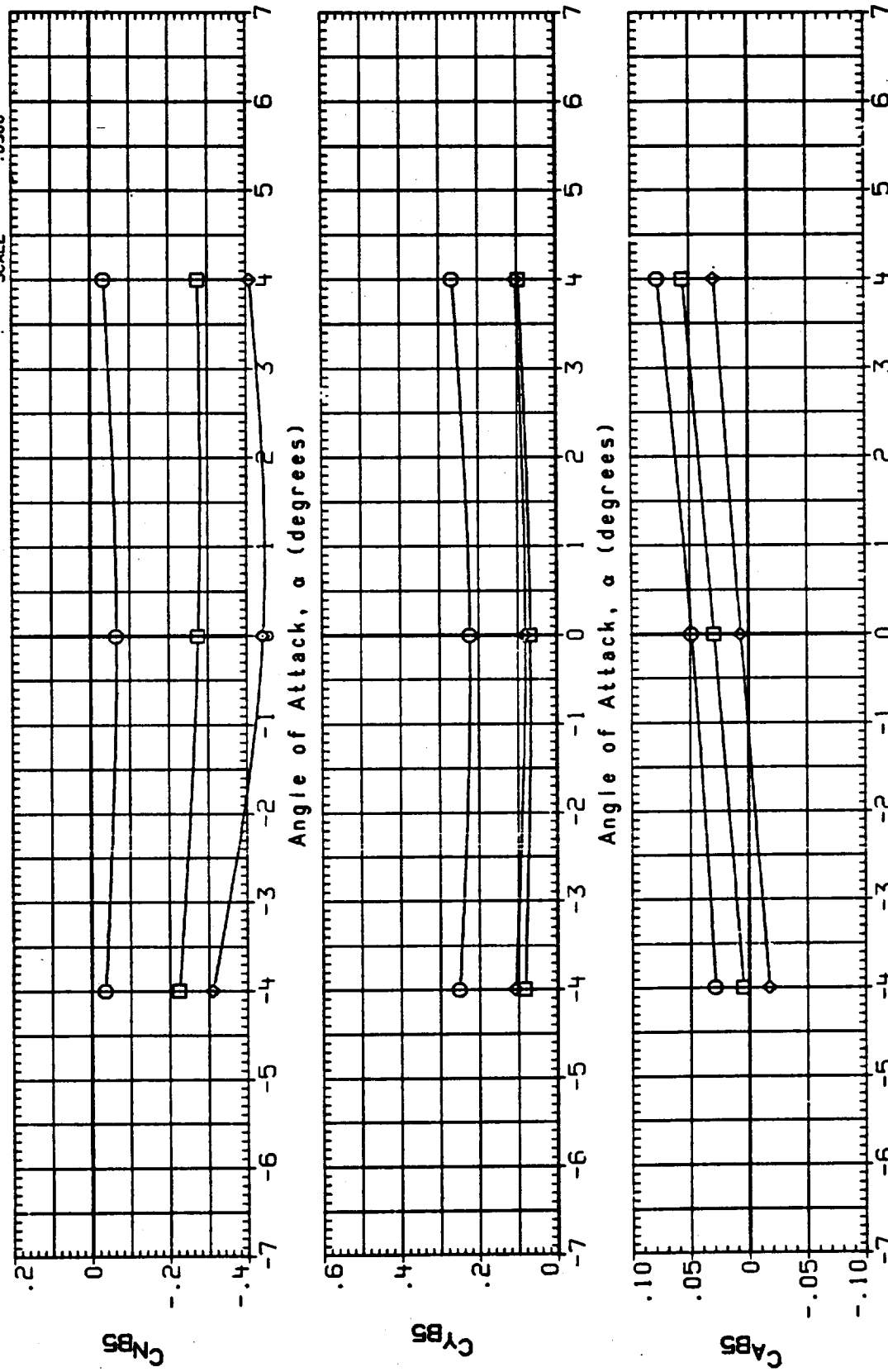


FIGURE 12. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS

13UC05
SYMBOL

CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP ON
BETA
-4.000
4.000
PARAMETRIC VALUES
MACH 1.250
IB-ELV 10.000
OB-ELV .000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XPRP .0000 IN. XT
YPRP .0000 IN. YT
ZPRP .0000 IN. ZT
SCALE .0300

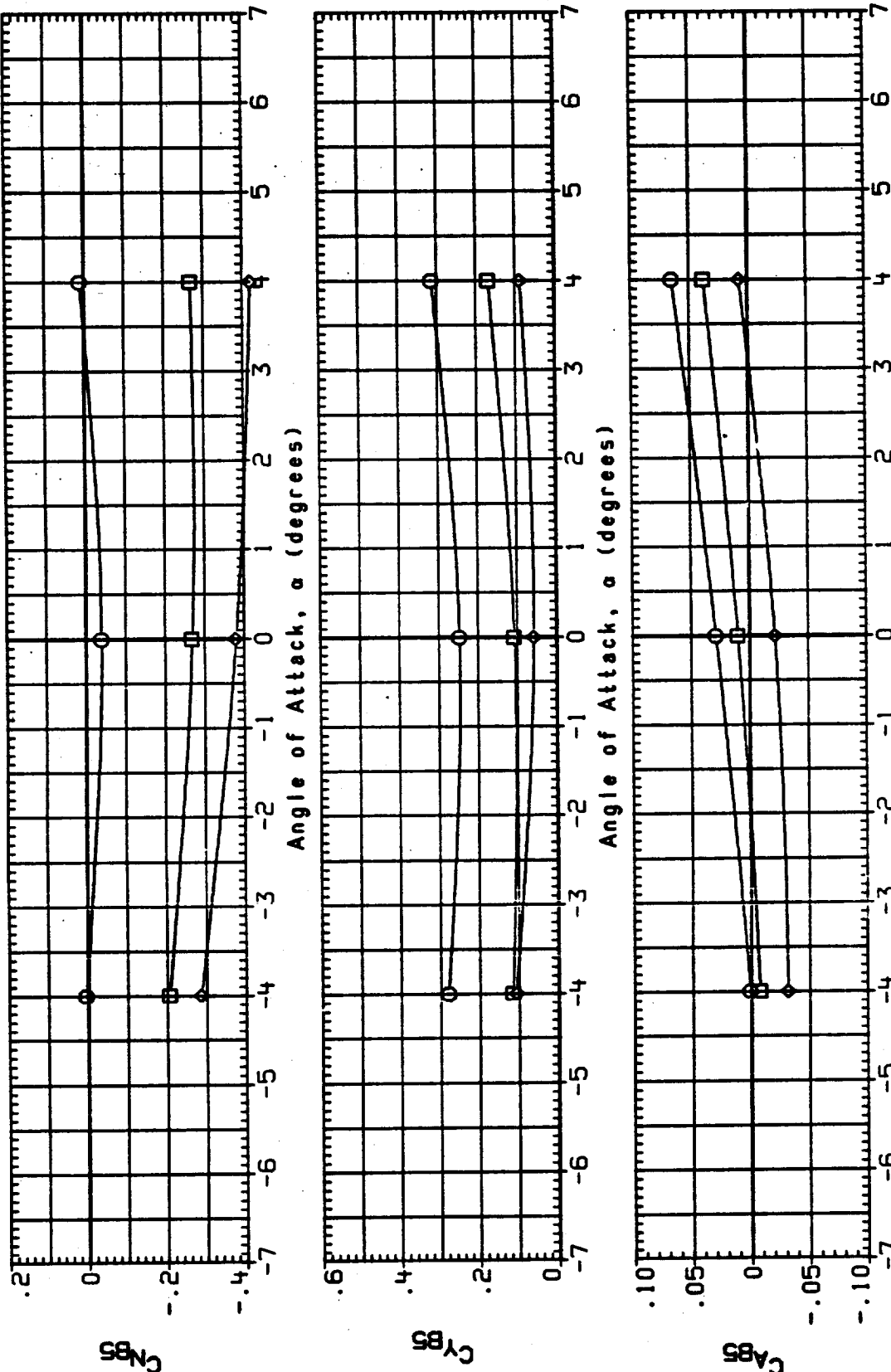


FIGURE 12. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS ON

13UC08 CONFIGURATION 1A190A. LH2 TK C TRY + G02 P + L02 AG LN. RHP ON

BETA PARAPETRIC VALUES
 -4.000 MACH 1.400
 4.000 IB-ELV 10.000
 08-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

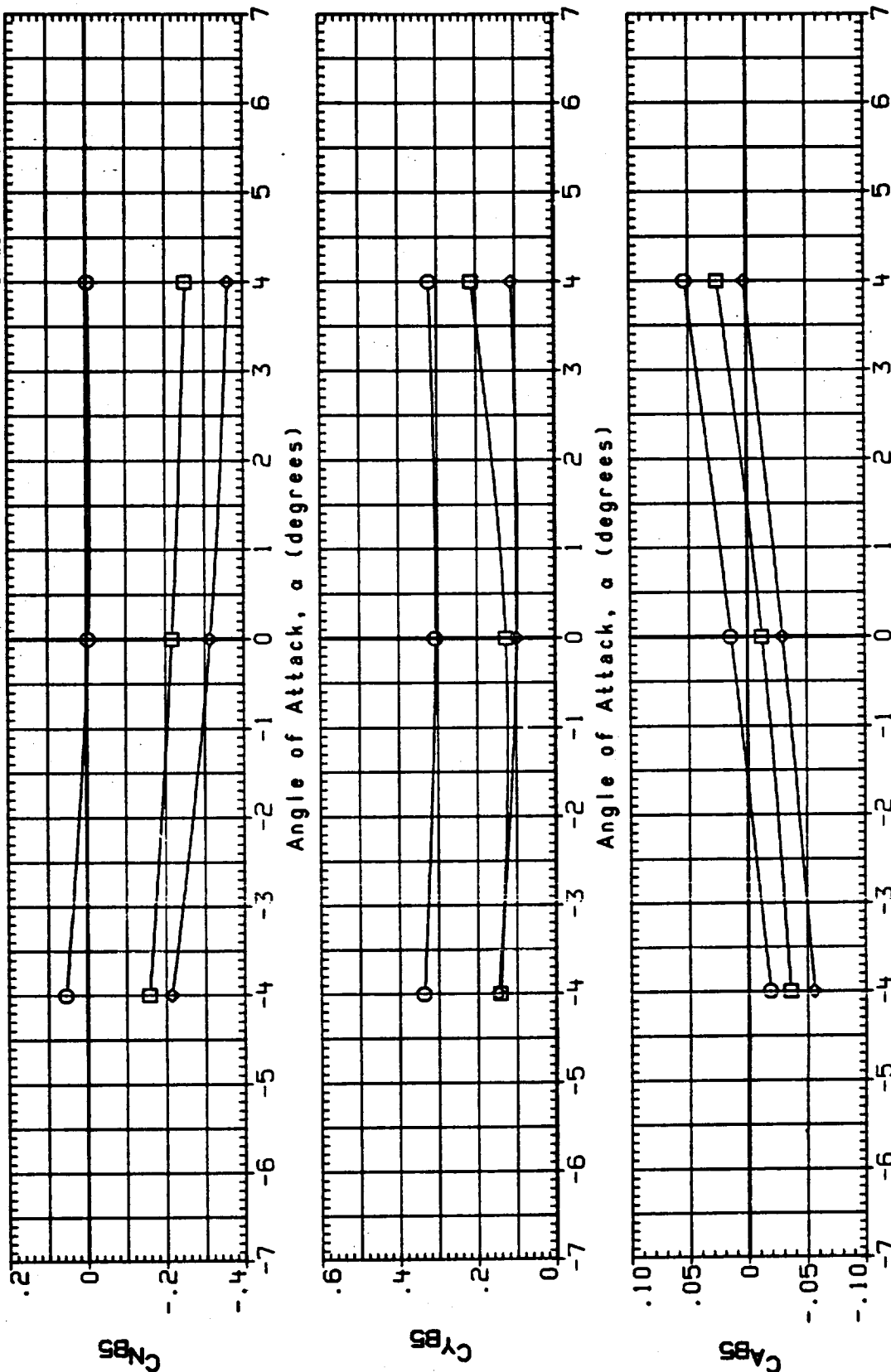


FIGURE 12. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS ON PAGE 69

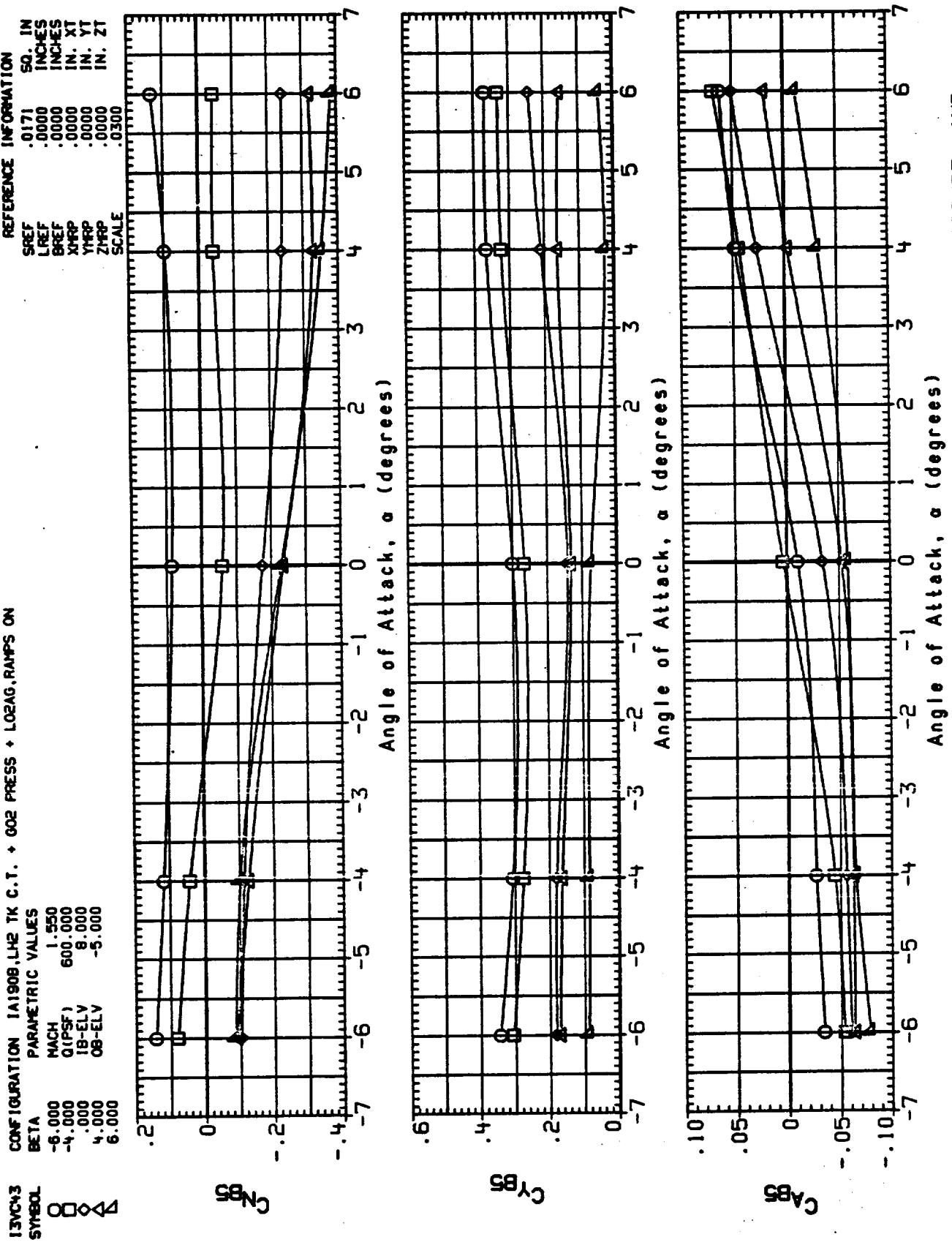
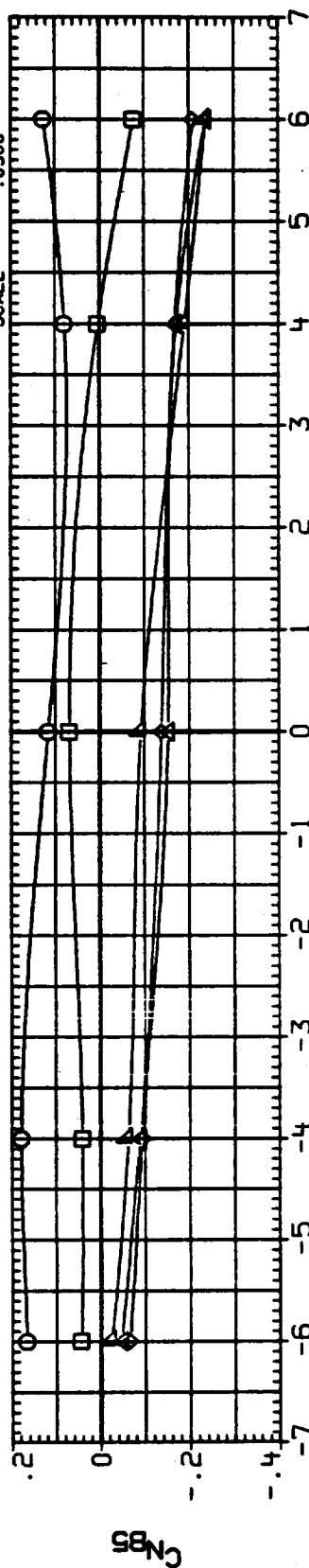


FIGURE 12. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND LO2 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS

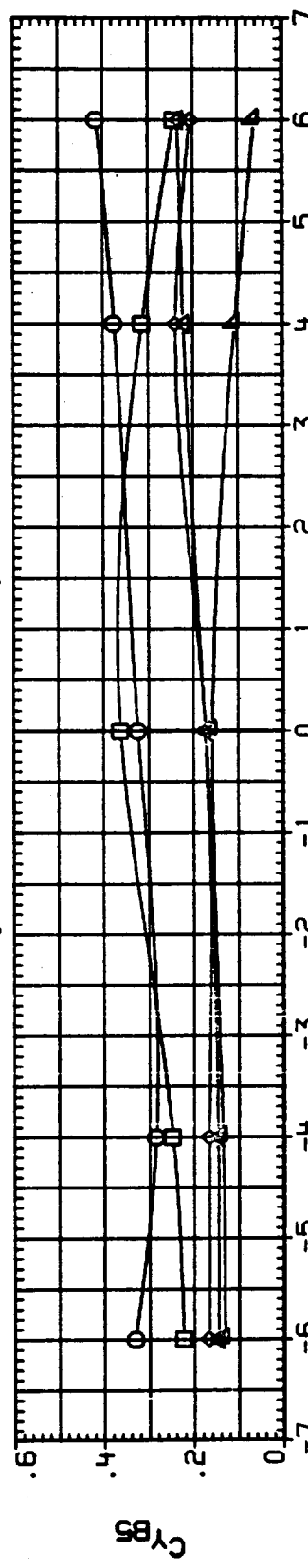
13VC44
SYMBOL
◇
□
△
○

CONFIGURATION 1A1908.LH2 TK C.T. + G02 PRESS + L02AG.RAMPS ON
BETA PARAMETRIC VALUES
-8.000 MACH 2.000
-4.000 Q(PSF) 600.000
.000 18-ELV 8.000
4.000 08-ELV -5.000
6.000

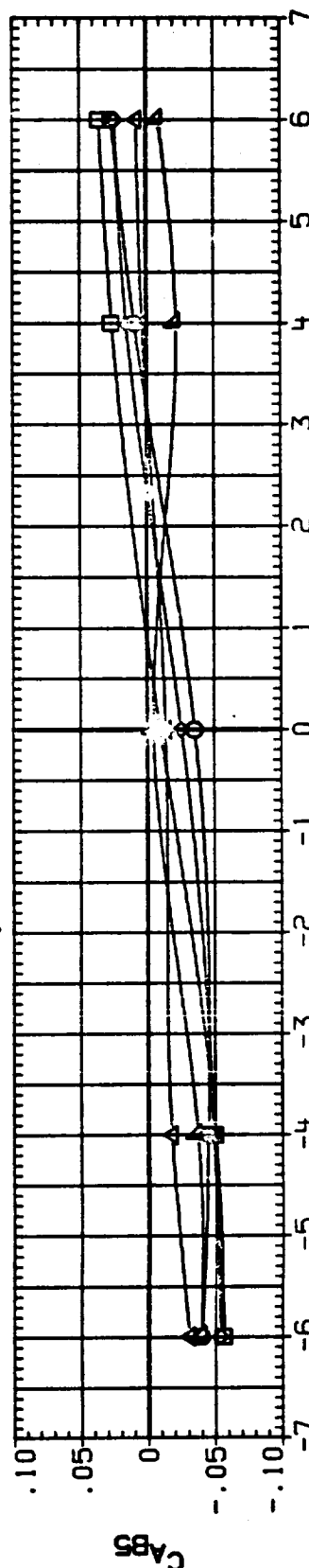
REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 12. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSEYER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS ON

13J007 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RHP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH .600
 .000 18-ELV 10.000
 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

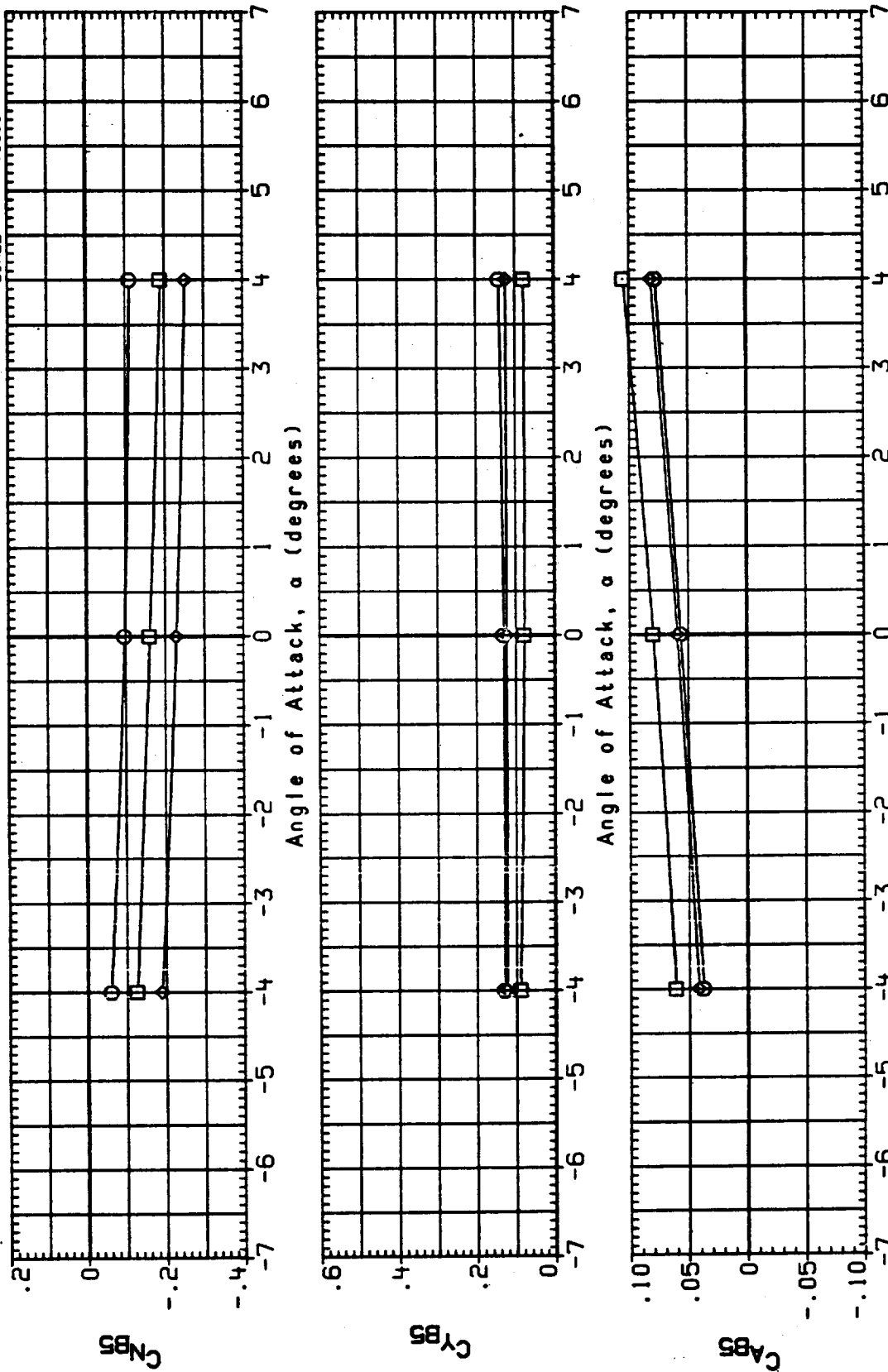


FIGURE 13. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS OFF

13408 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XRRP .0000 IN. XT
YRRP .0000 IN. YT
ZRRP .0000 IN. ZT
SCALE .0300

BETA PARAMETRIC VALUES
-4.000 MACH .900
.000 1B-ELV 10.000
4.000 08-ELV 9.000

SYMBOL
◇
□

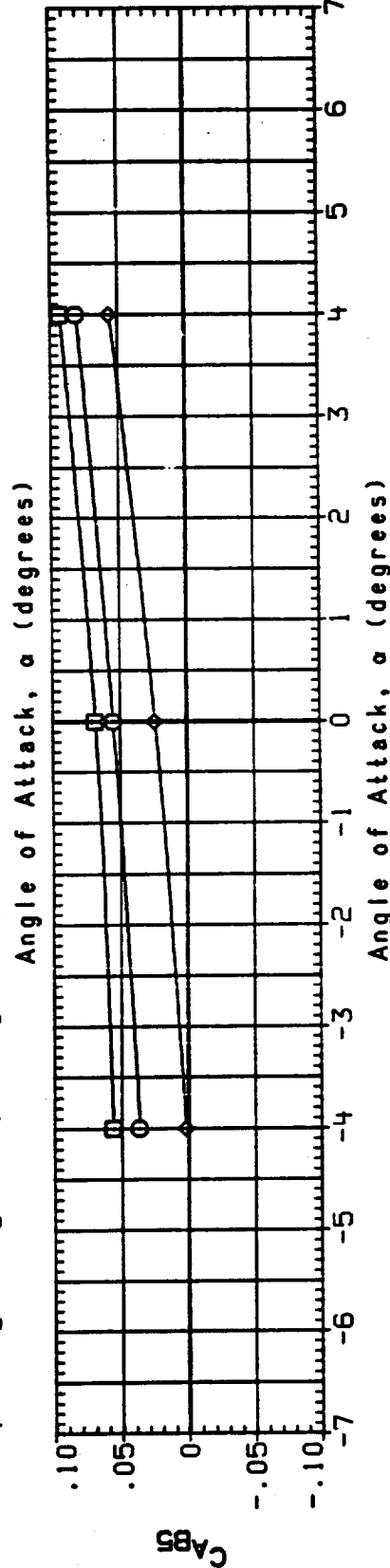
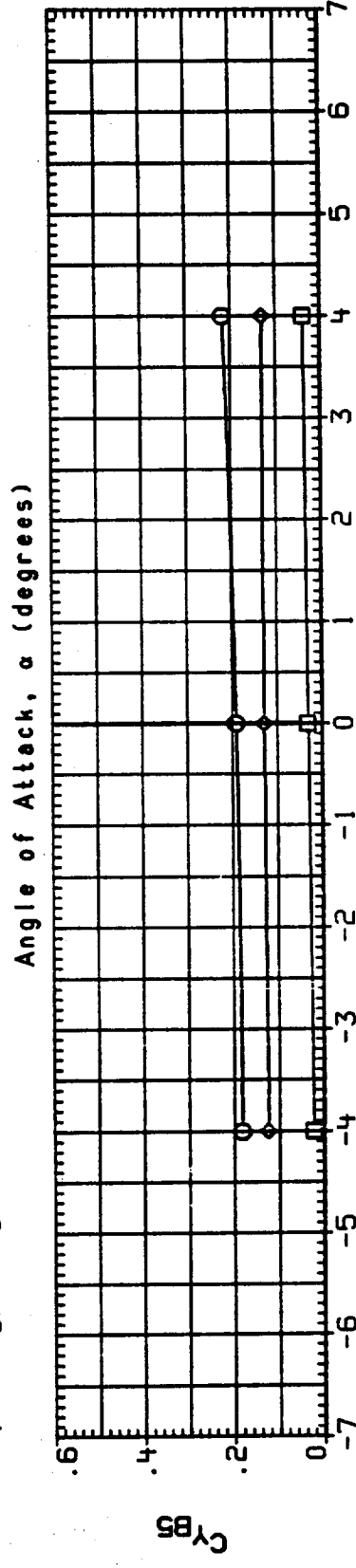
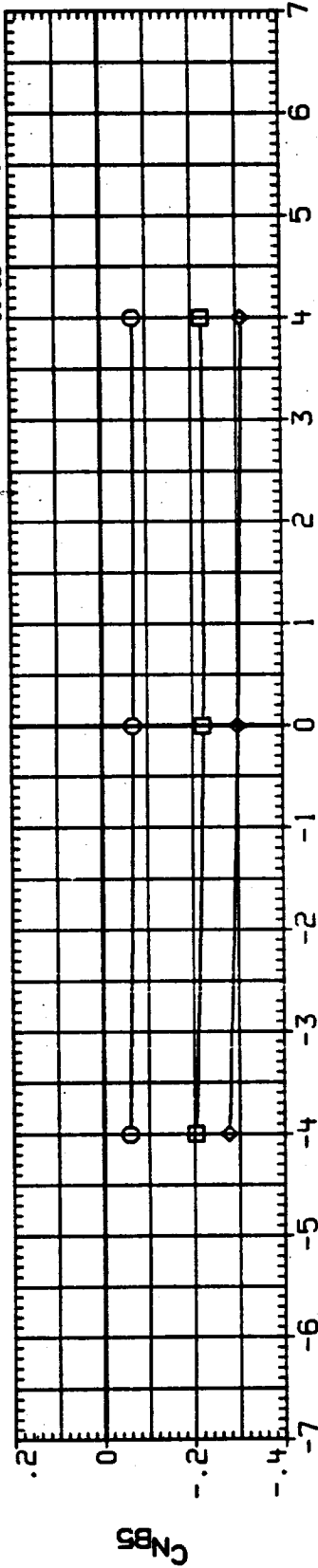


FIGURE 13. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS OFF

13UC09 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.100
 4.000 18-ELV 10.000
 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LRLF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

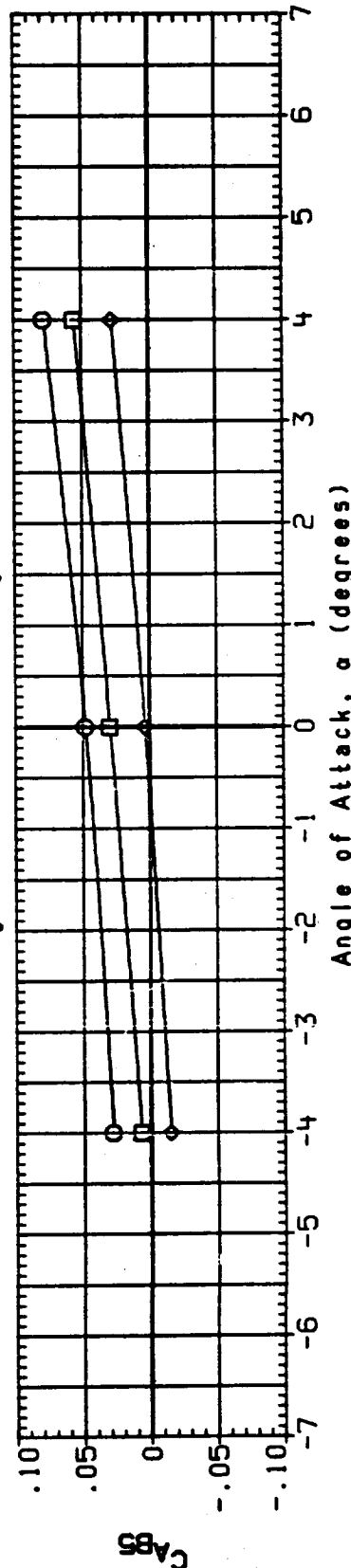
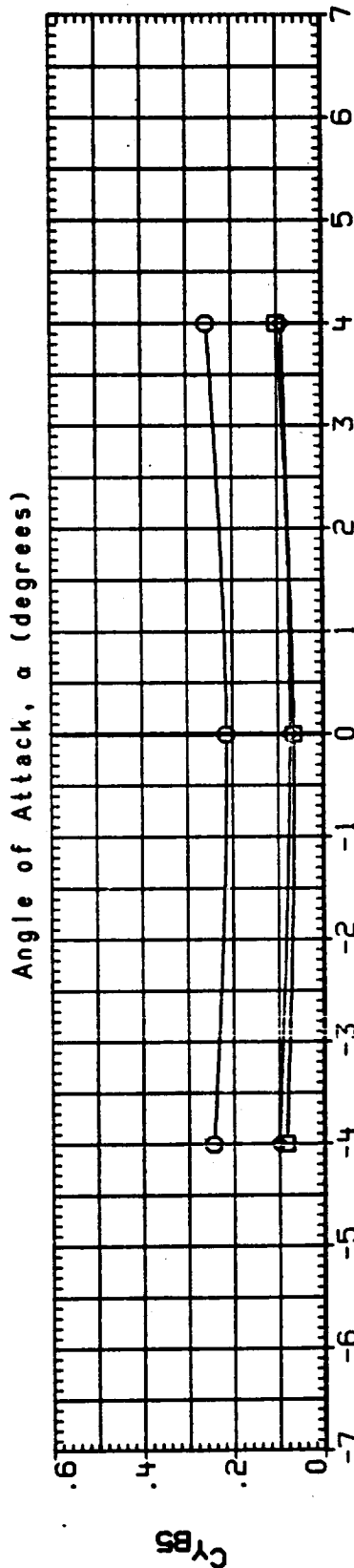
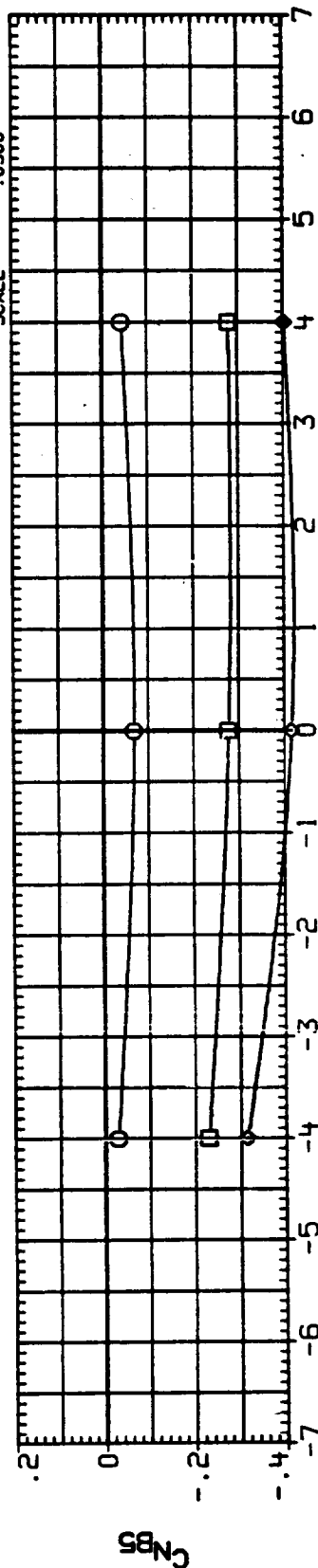


FIGURE 13. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS OFF

CONFIGURATION 1A190A, LH2 TK C TRY + 002 P + L02 AG LN,RHP OFF

13J010
SYMBOL

PARAMETRIC VALUES
BETA -4.000
MACH 1.250
IB-ELV 10.000
OB-ELV .000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XRRP .0000 IN. XT
YRRP .0000 IN. YT
ZRRP .0000 IN. ZT
SCALE .0300

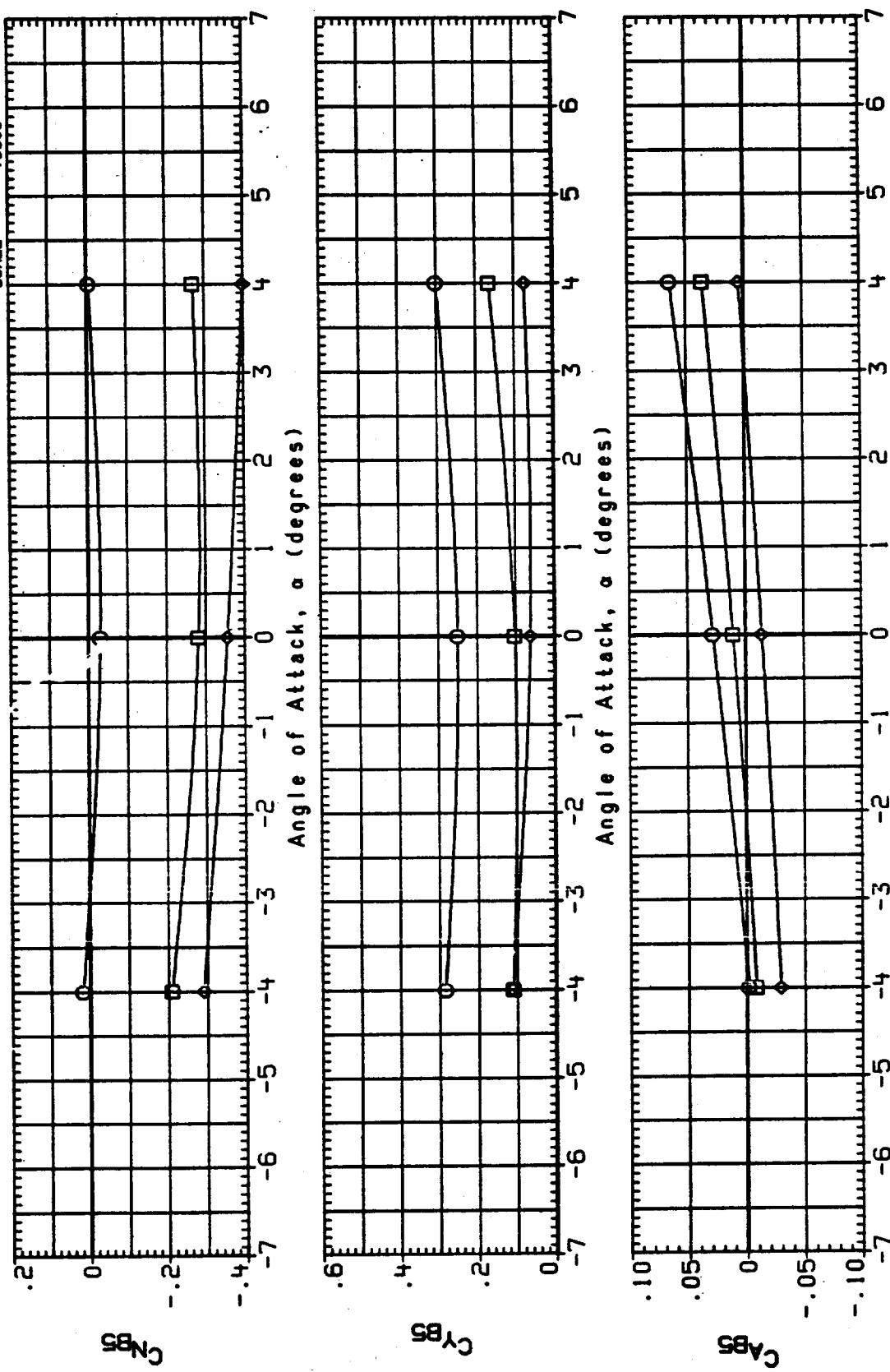


FIGURE 13. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS OFF

13J11 CONFIGURATION 1A190A, LH2 TK C TRY + G02 P + L02 AG LN,RWP OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 .000 18-ELV 10.000
 4.000 08-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

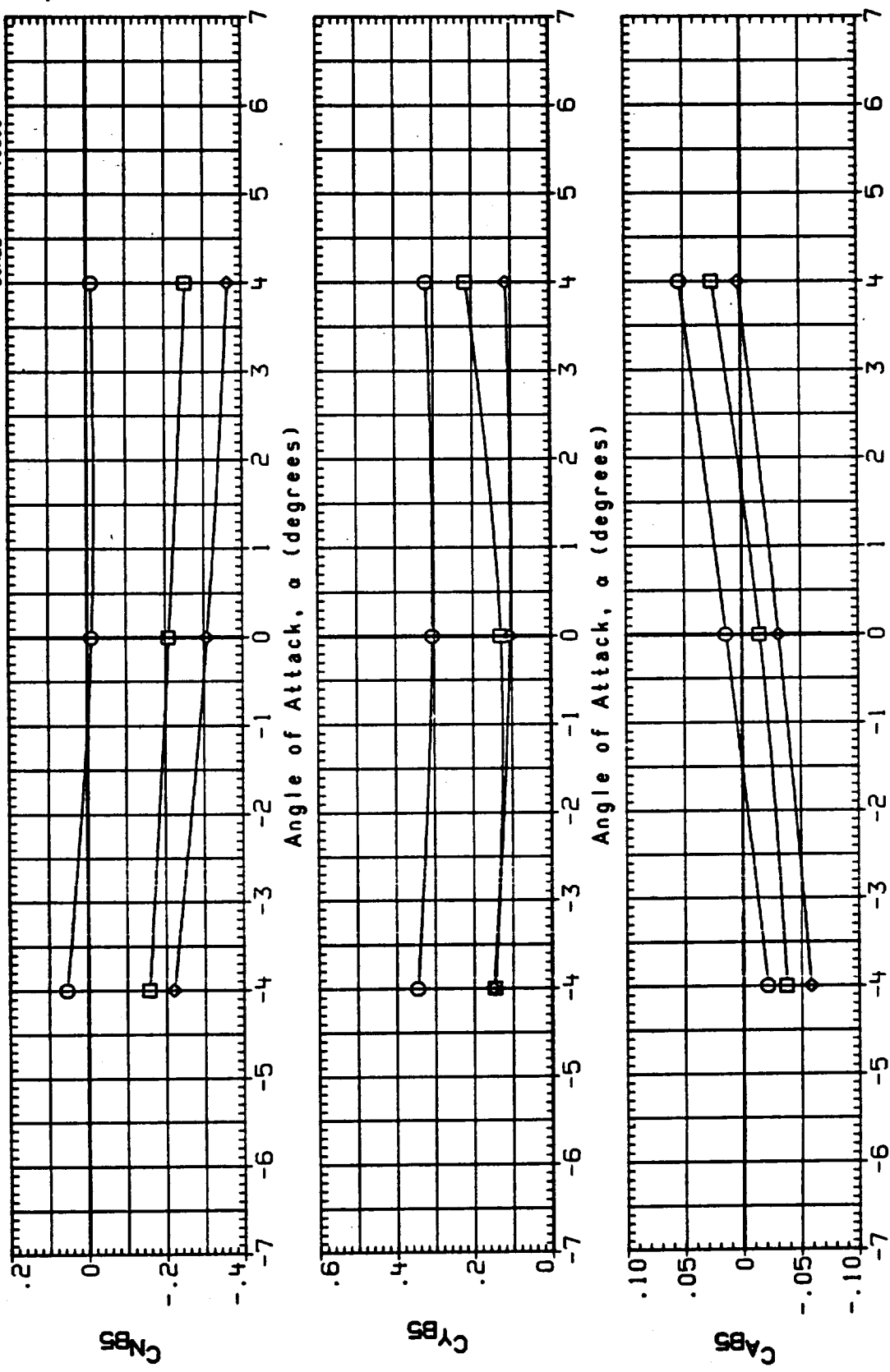


FIGURE 13. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS OFF

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

REFERENCE INFORMATION
 SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

PARAMETRIC VALUES
 BETA -6.000
 MACH 1.550
 Q(PSF) 600.000
 IB-ELV 8.000
 OB-ELV -5.000

13VC46
 SYMBOL
 ○ □ △

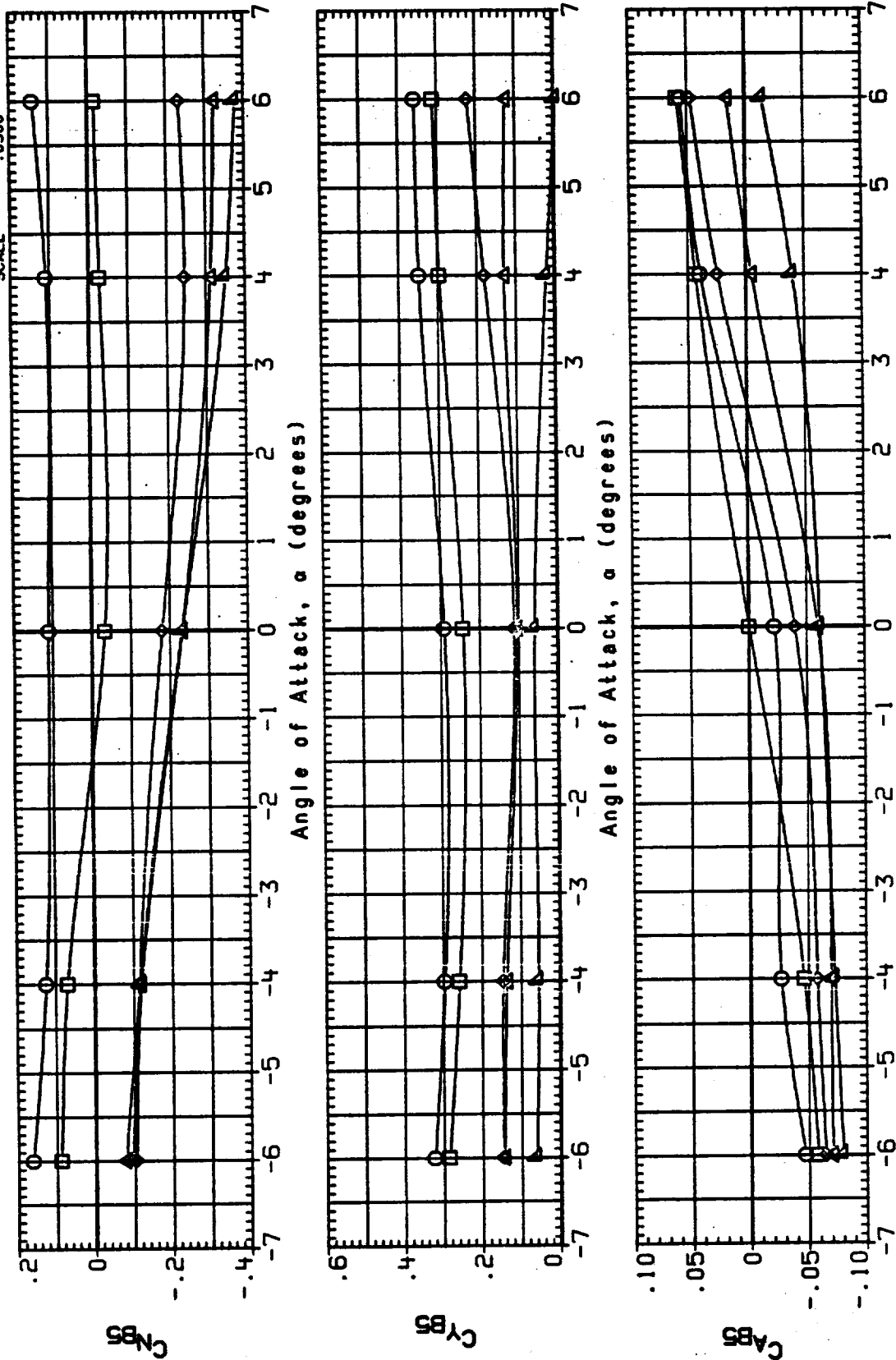


FIGURE 13. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS OFF

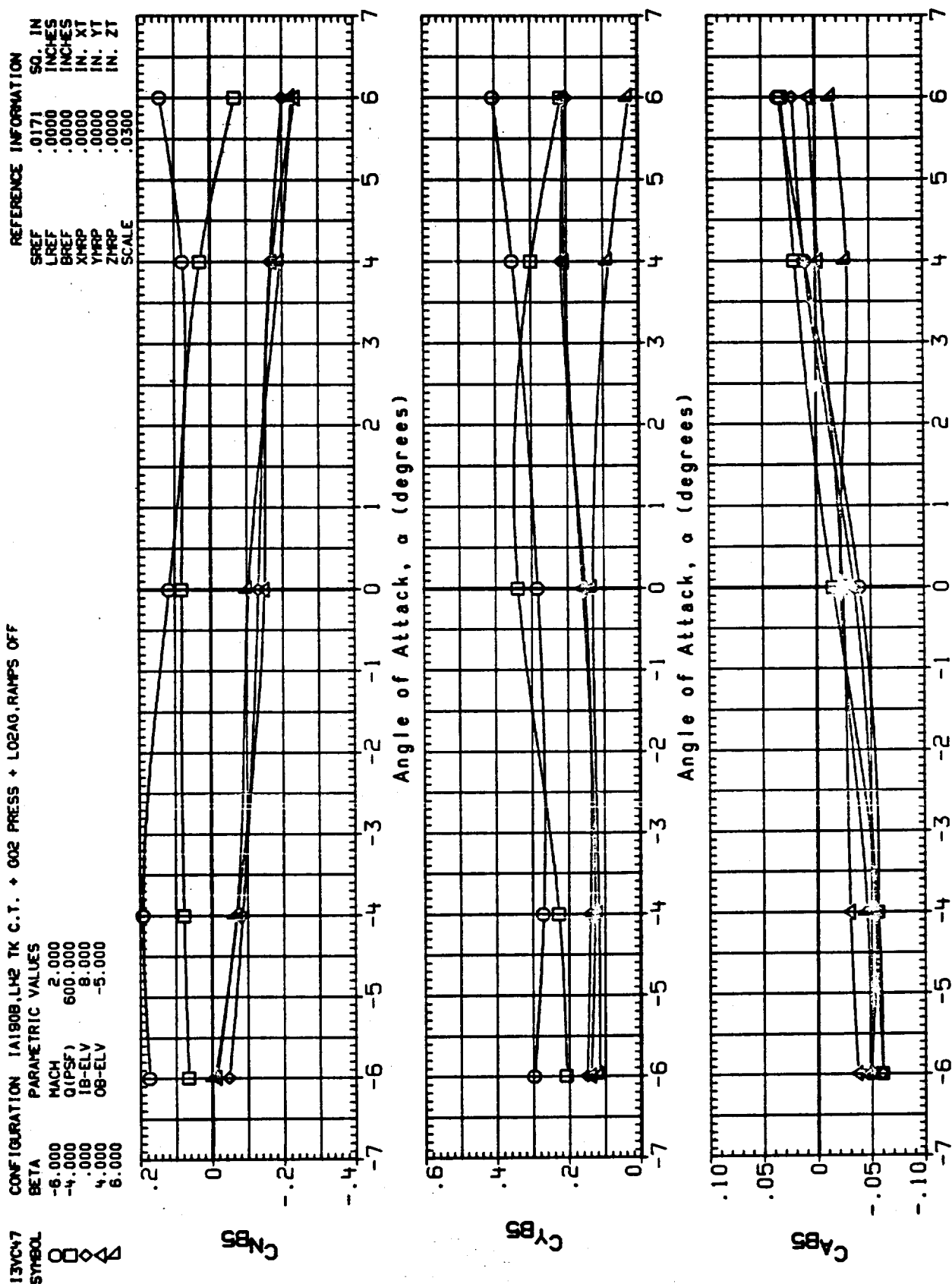


FIGURE 13. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGEYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMP'S OFF

13VC48
 SYMBOL Δ \square \diamond

CONFIGURATION 1A1908, LH2 TK C.T. + G02 PRESS + L02A0, RAMPS OFF

PARAMETRIC VALUES	
BETA	MACH
-6.000	2.500
-4.000	Q(PSF)
4.000	600.000
4.000	18-ELV
6.000	08-ELV
	-5.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

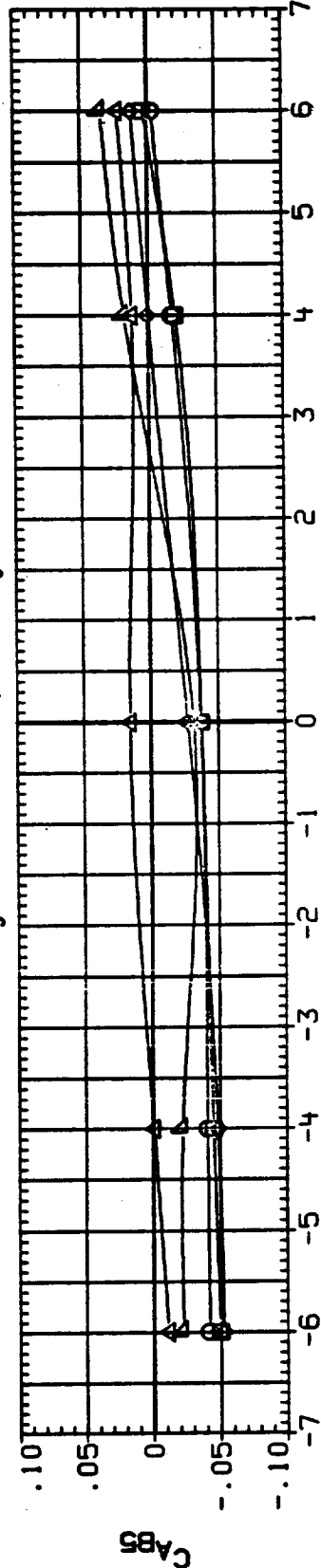
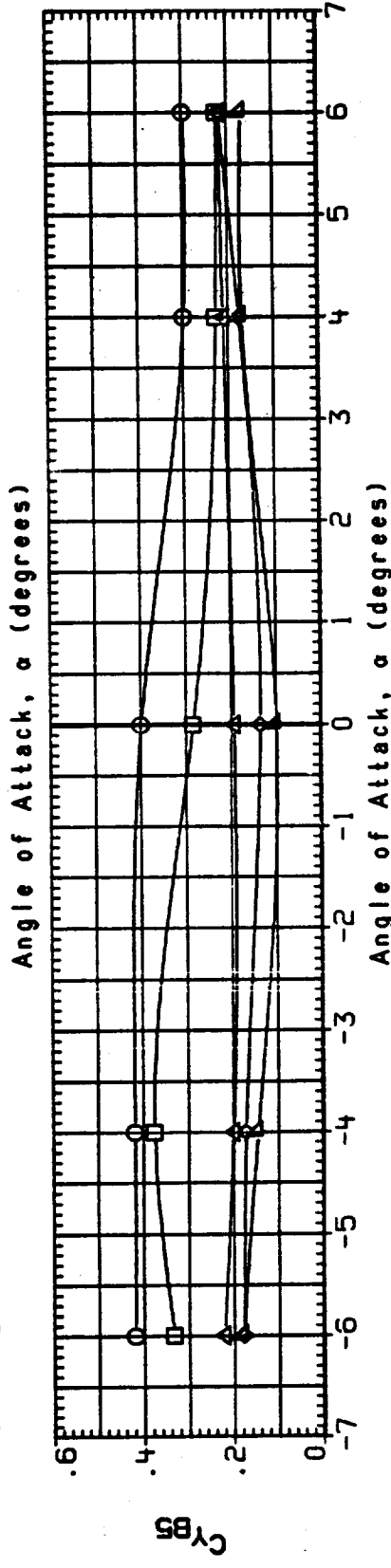
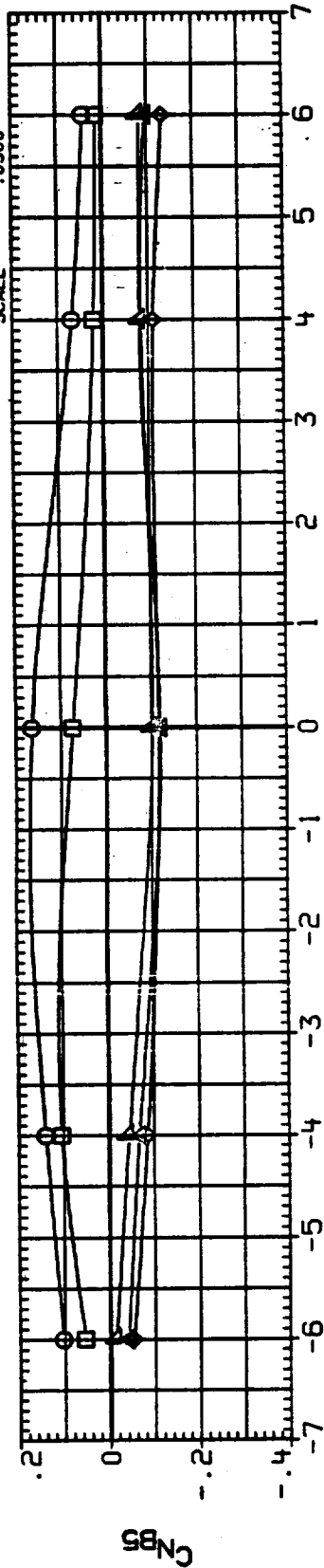


FIGURE 13. AERODYNAMIC FORCES ON THE LH2 TANK CABLE TRAY, G02 PRESSURE, AND L02 ANTIGYSER LINES COMBINED, XT = 1819.3 TO 2050.0, RAMPS OFF

13J002 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON
 SYMBOL PARAMETRIC VALUES
 BETA MACH 1B-ELV 10.000
 -4.000 9.000
 4.000 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

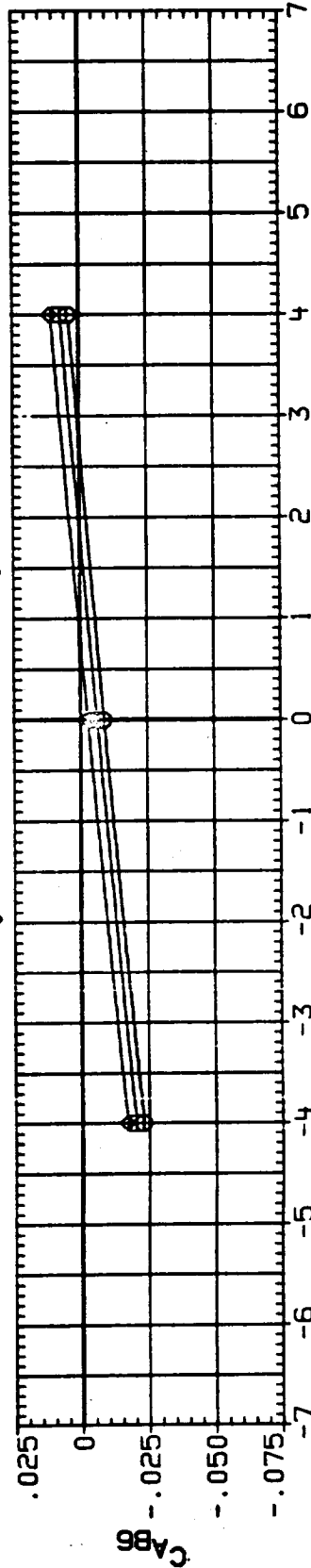
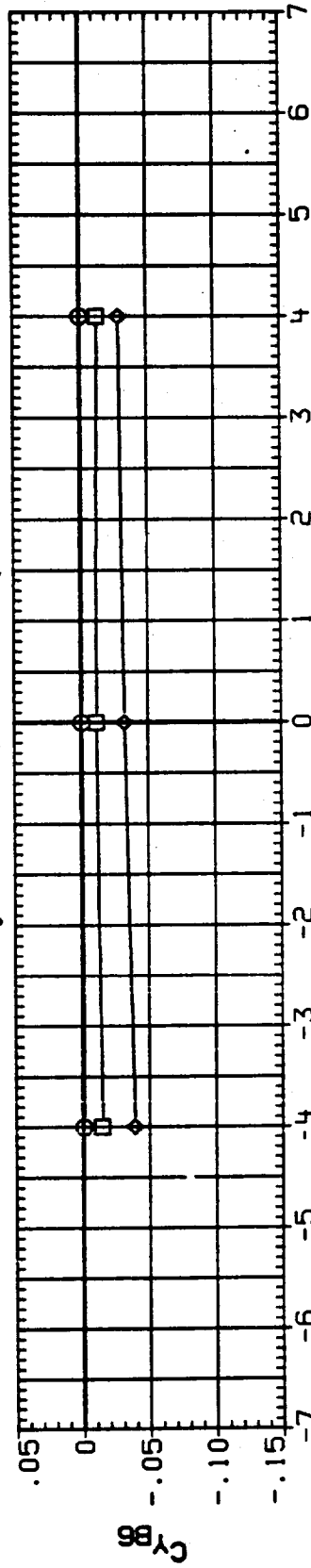
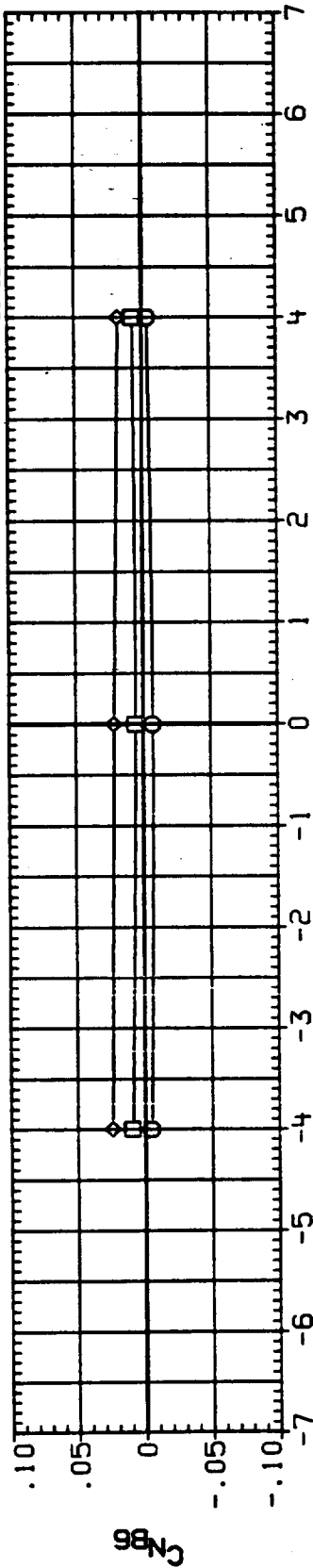


FIGURE 14. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS ON

13003 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

BETA PARAMETRIC VALUES
 -4.000 MACH .900
 .000 IB-ELV 10.000
 4.000 OB-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

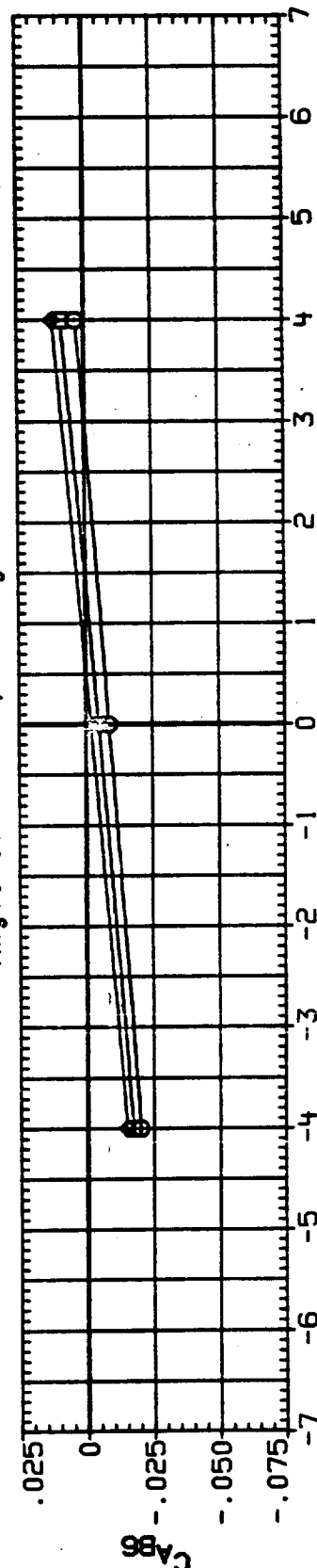
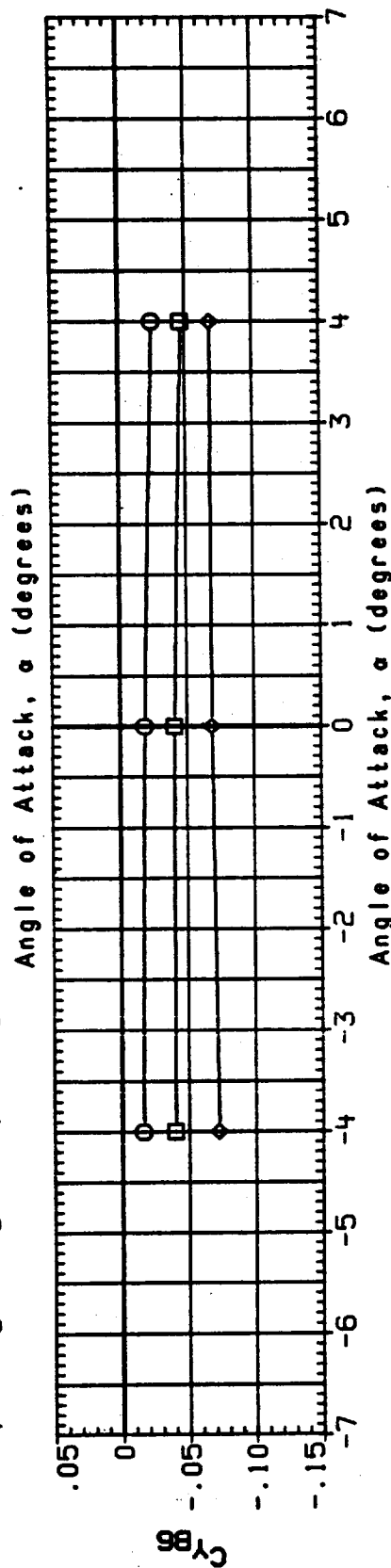
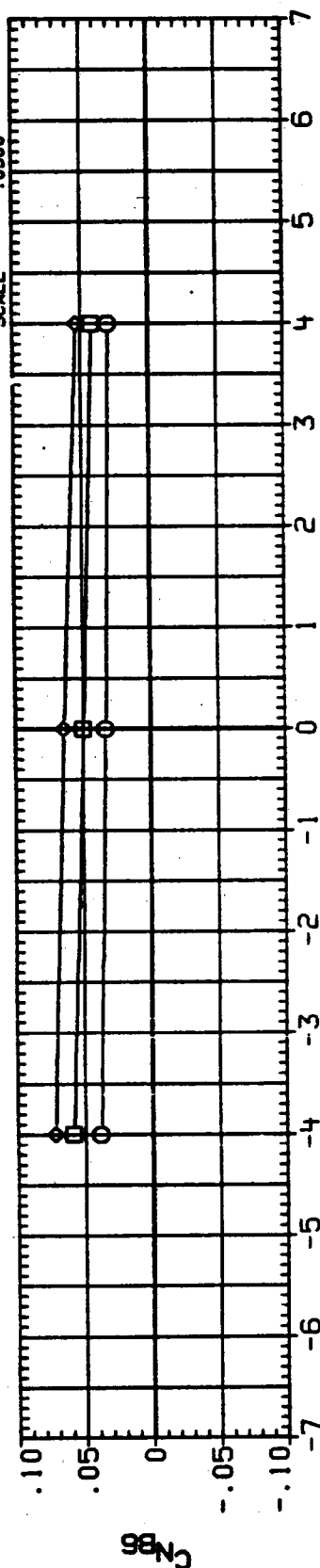


FIGURE 14. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS ON

CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

130004
SYMBOL

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH 1.100
IB-ELV 10.000
OB-ELV 9.000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

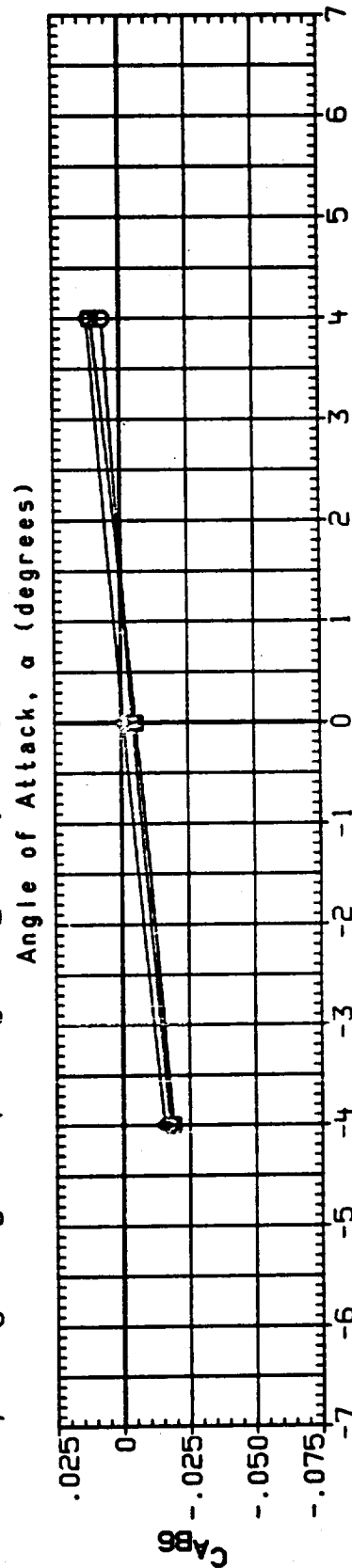
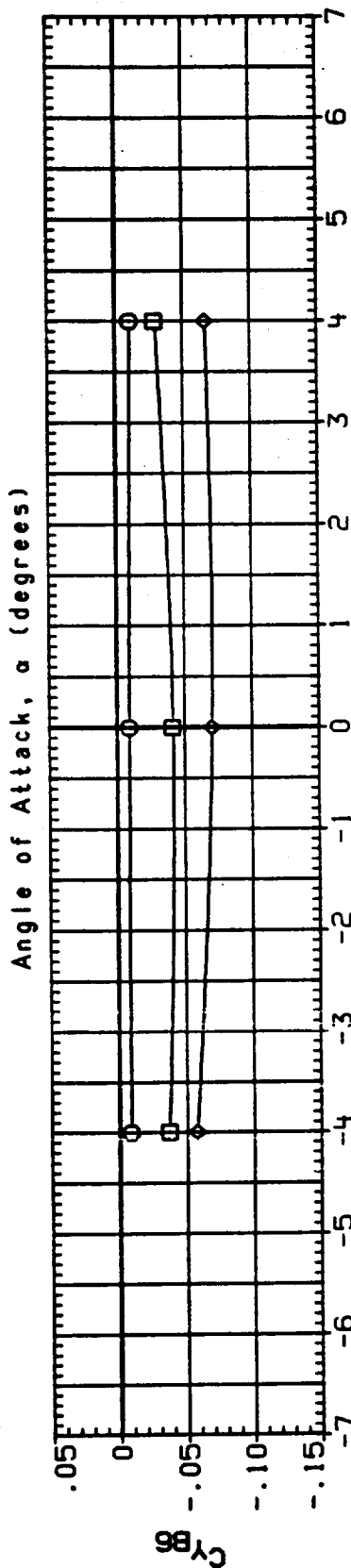
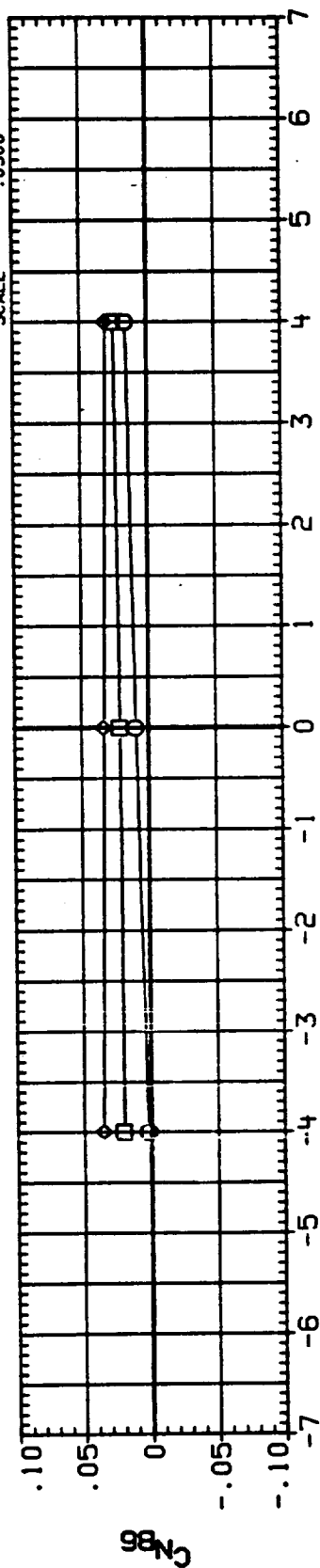


FIGURE 14. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS ON

13J005 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

BETA PARAMETRIC VALUES
 -4.000 MACH 1.250
 .000 1B-ELV 10.000
 4.000 0B-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

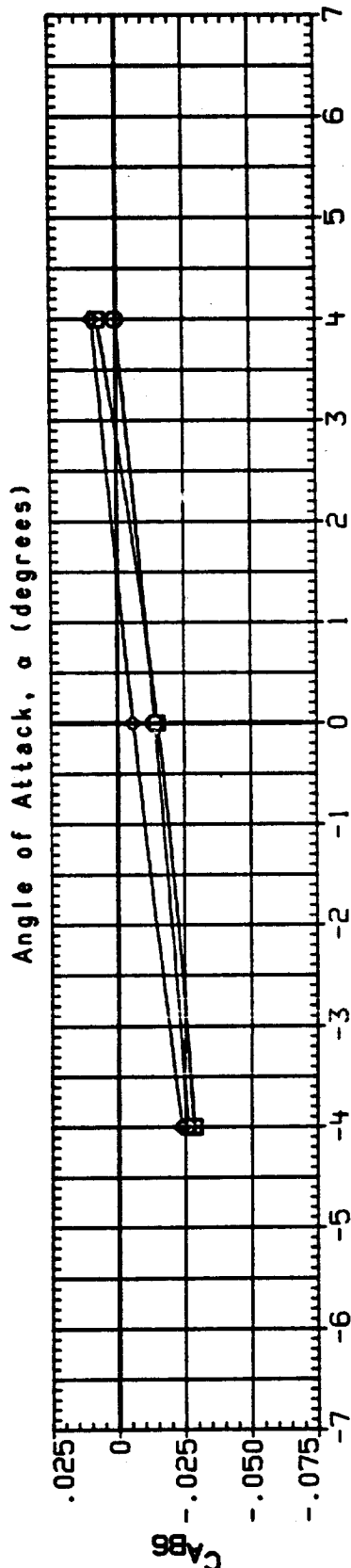
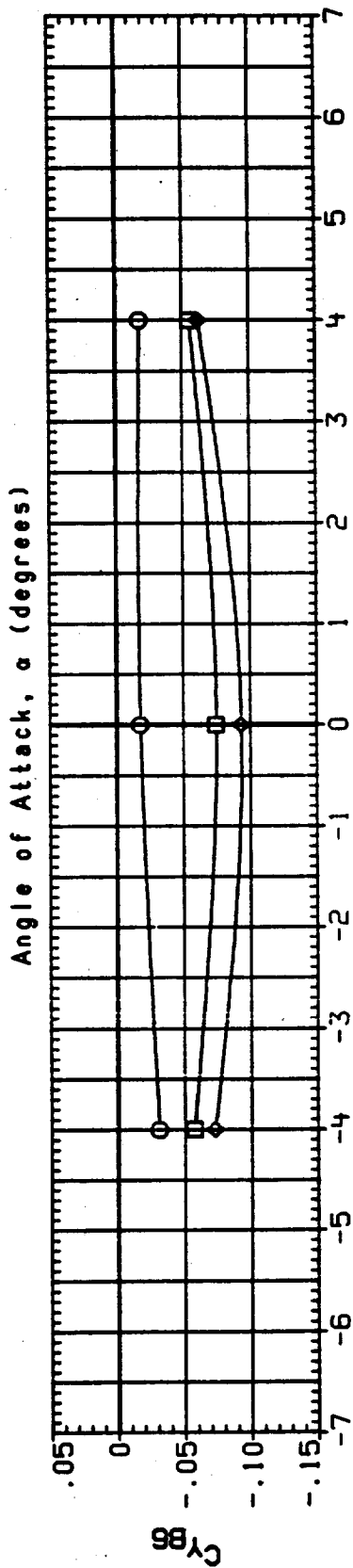
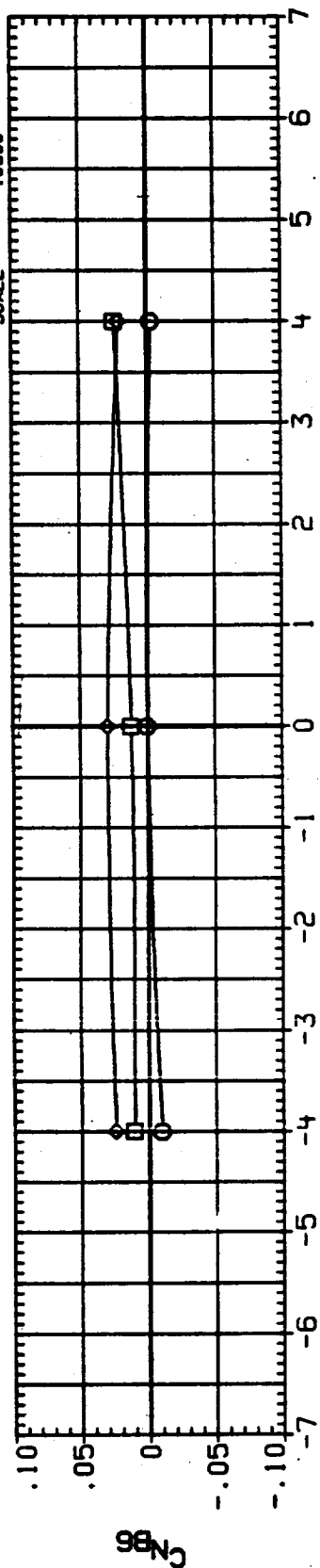


FIGURE 14. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS ON

13J006 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH 1.400
IB-ELV 10.000
OB-ELV .000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

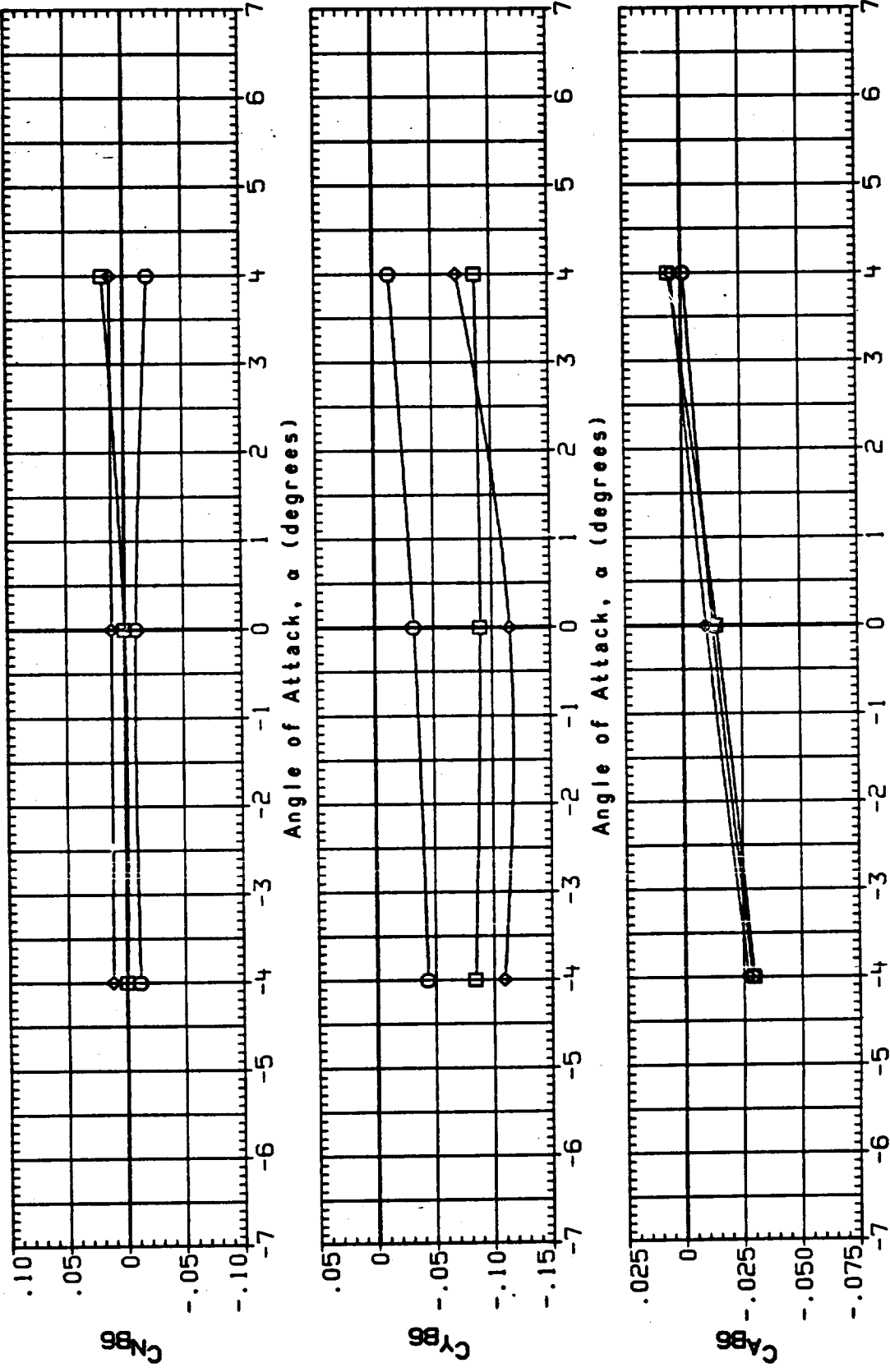


FIGURE 14. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS ON

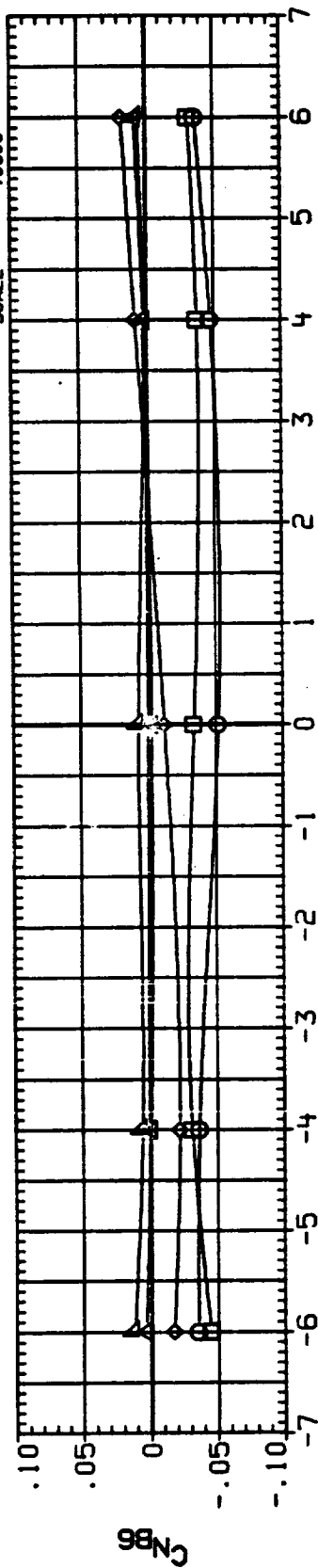
CONFIGURATION 1A1908.042 PRESSURE LINE RAMPS ON

BETA
 -6.000
 -4.000
 .000
 4.000
 6.000

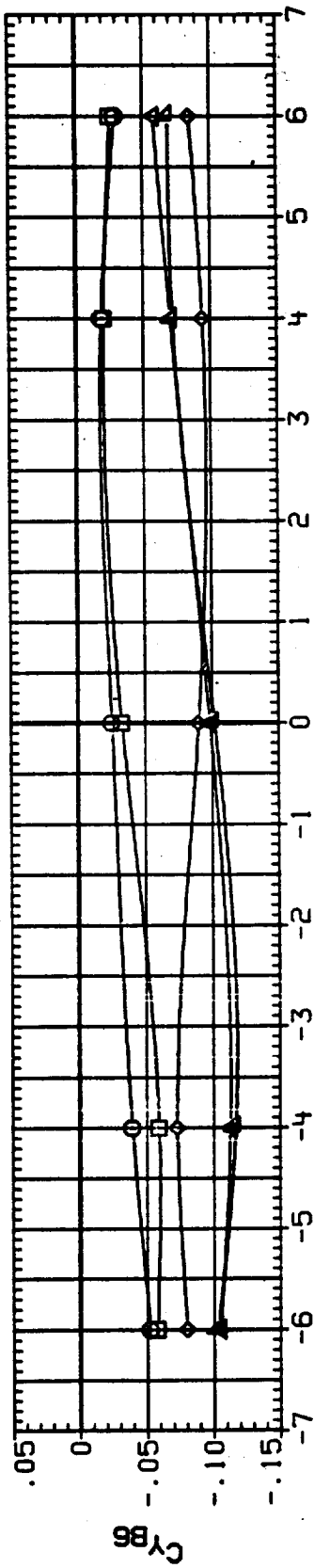
PARAMETRIC VALUES
 MACH 1.550
 Q(P/SF) 600.000
 18-ELV 8.000
 08-ELV -5.000

REFERENCE INFORMATION

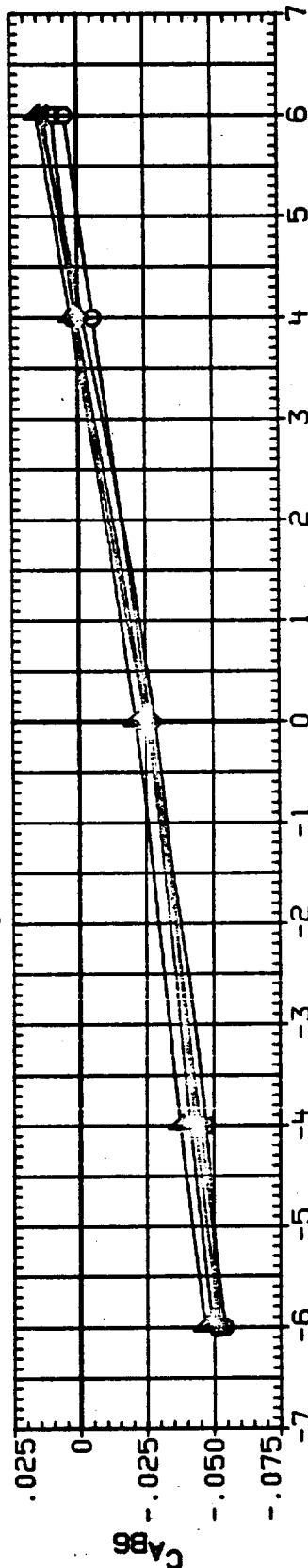
SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 14. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS ON

CONFIGURATION 1A1908, GH2 PRESSURE LINE RAMP ON

13VD44	BETA	PARAMETRIC VALUES
SYMBOL		
▽	-6.000	MACH 2.000
◇	-4.000	Q (PSF) 600.000
□	.000	18-ELV 8.000
	4.000	08-ELV -5.000
	6.000	

REFERENCE INFORMATION	
SREF	.0171 SQ. IN
LREF	.0000 INCHES
BREF	.0000 INCHES
YMRP	.0000 IN. XT
ZMRP	.0000 IN. YT
SCALE	.0300

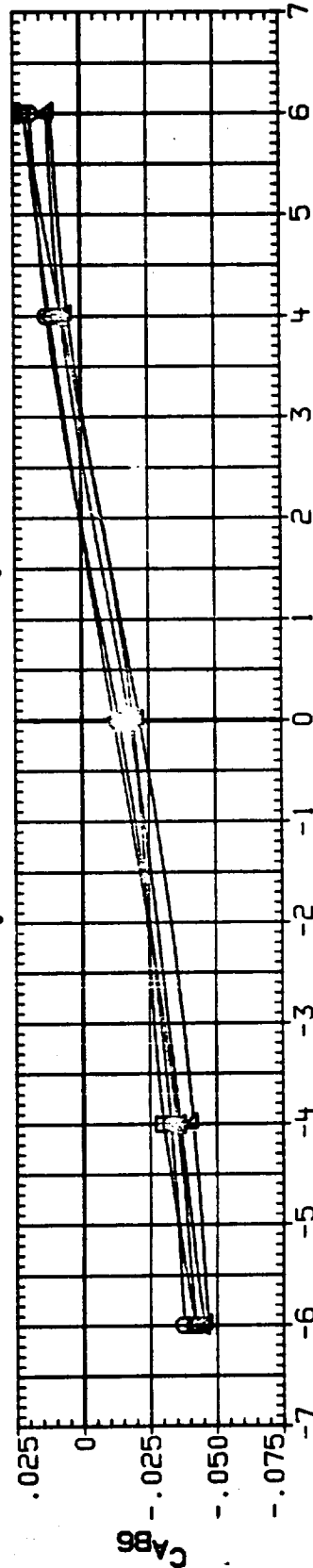
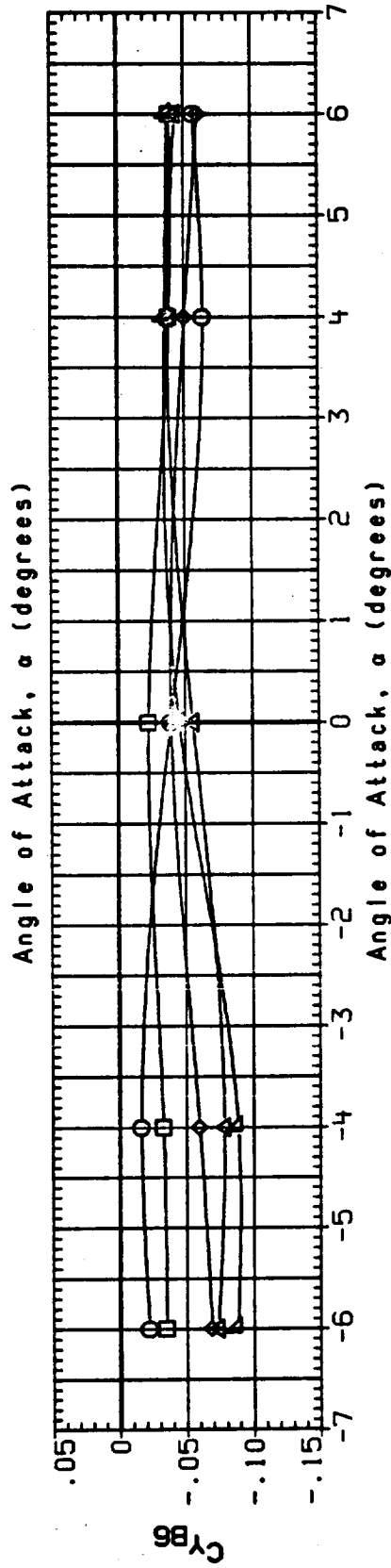
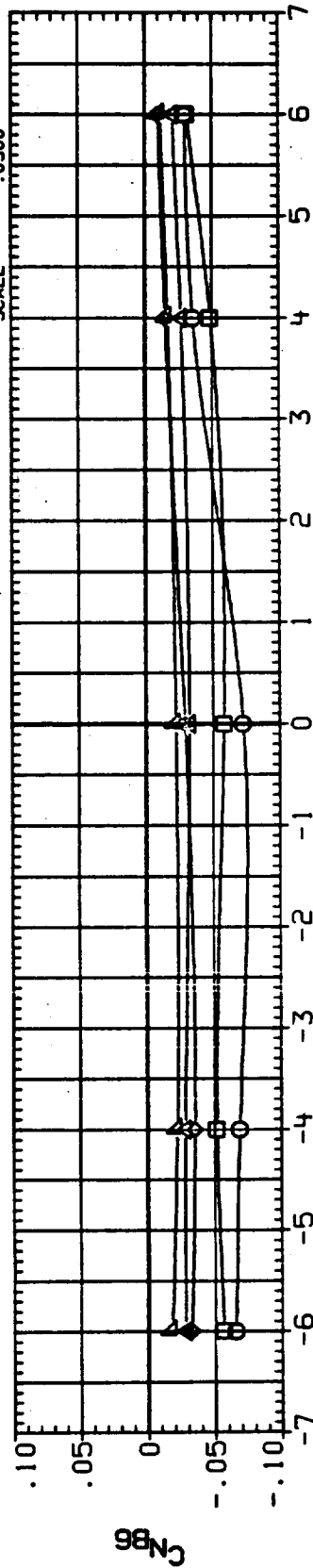


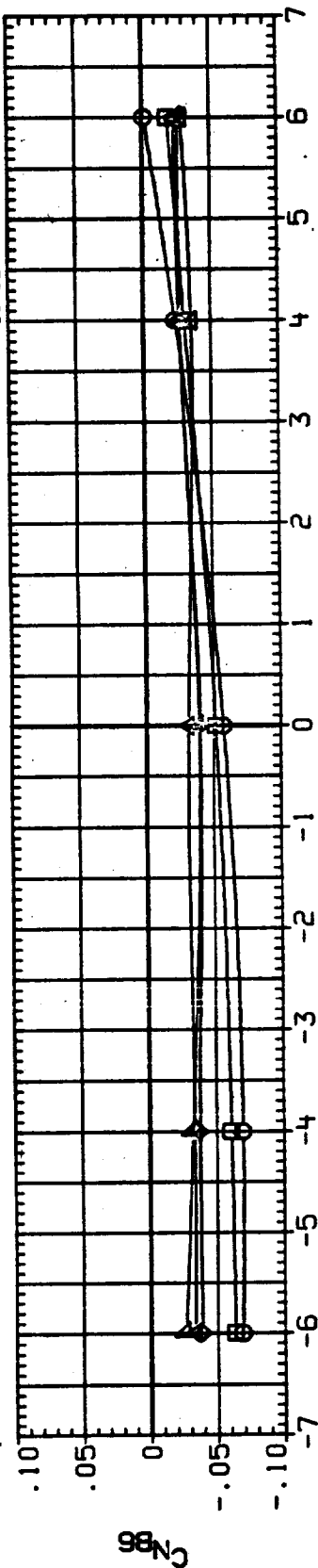
FIGURE 14. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS ON

CONFIGURATION 1A1808.042 PRESSURE LINE RAMP ON

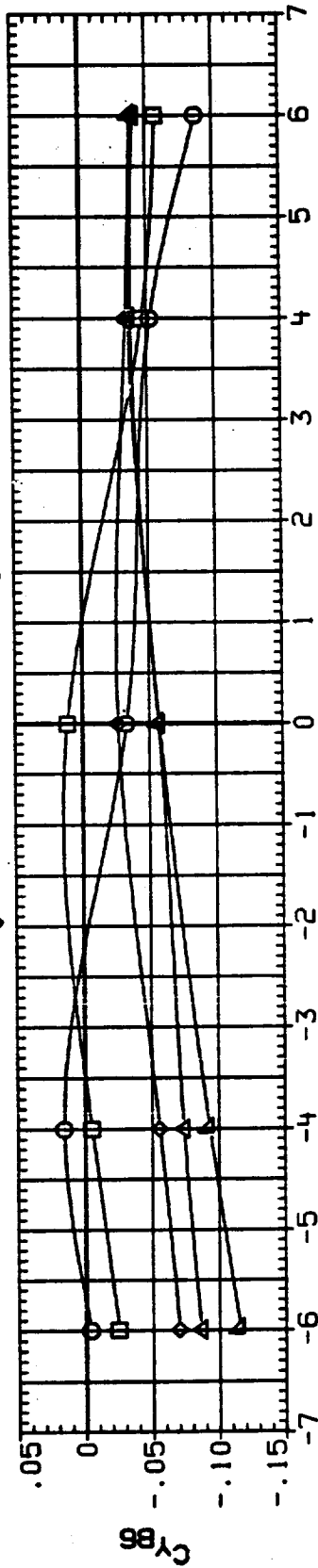
BETA
-6.000
-4.000
4.000
6.000

PARAMETRIC VALUES
MACH 2.500
Q(PSF) 600.000
IB-ELV 8.000
OB-ELV -5.000

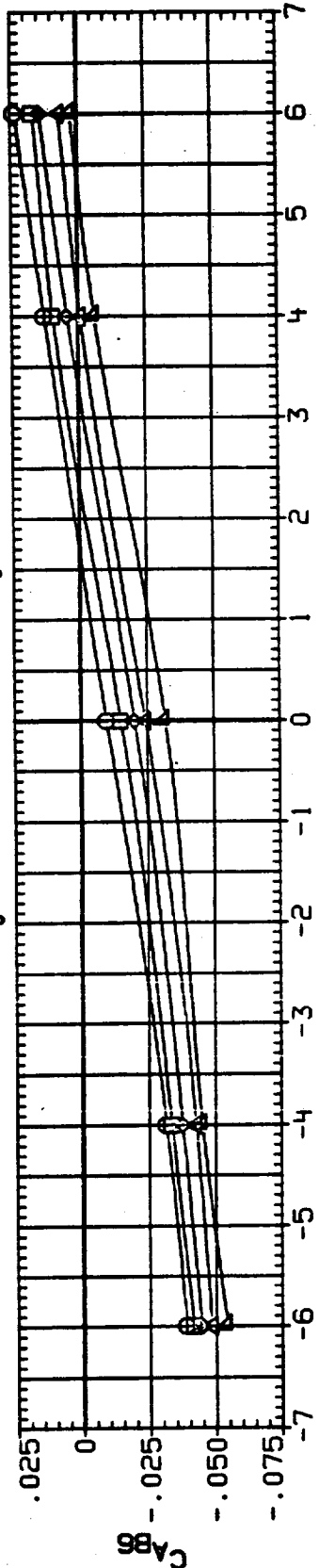
REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
YMRP .0000 IN. XT
ZMRP .0000 IN. YT
SCALE .0300 IN. ZT



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

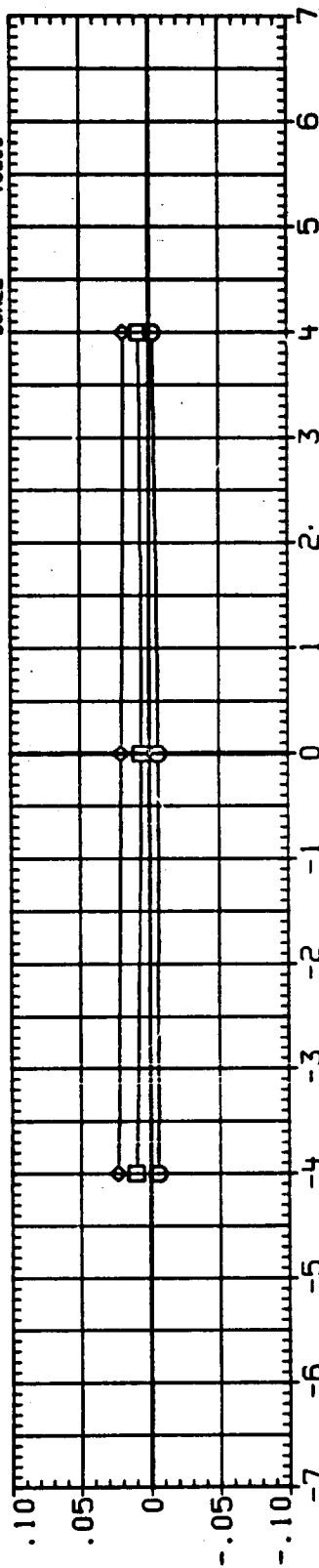
FIGURE 14. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMP ON

130017
SYMBOL

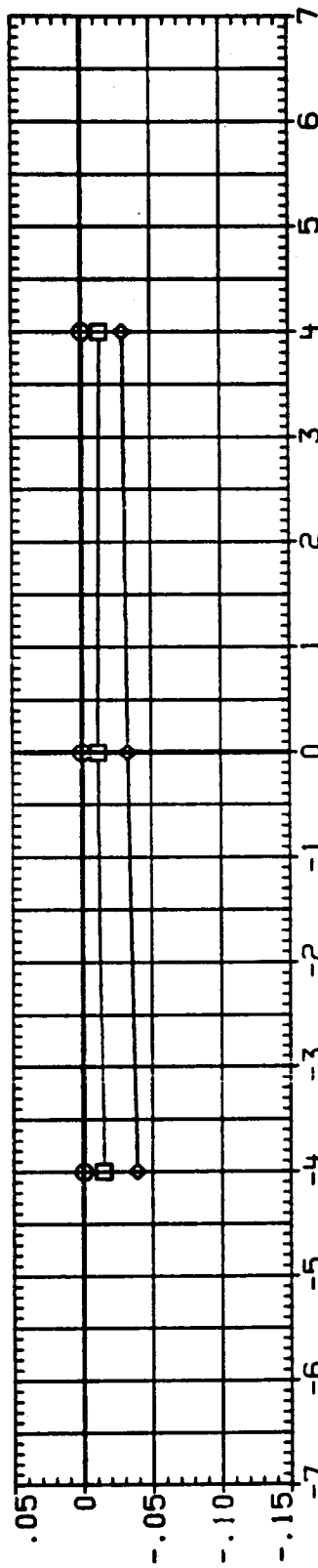
CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF
BETA
-4.000
.000
4.000

PARAMETRIC VALUES
MACH .600
IB-ELV 10.000
OB-ELV 9.000

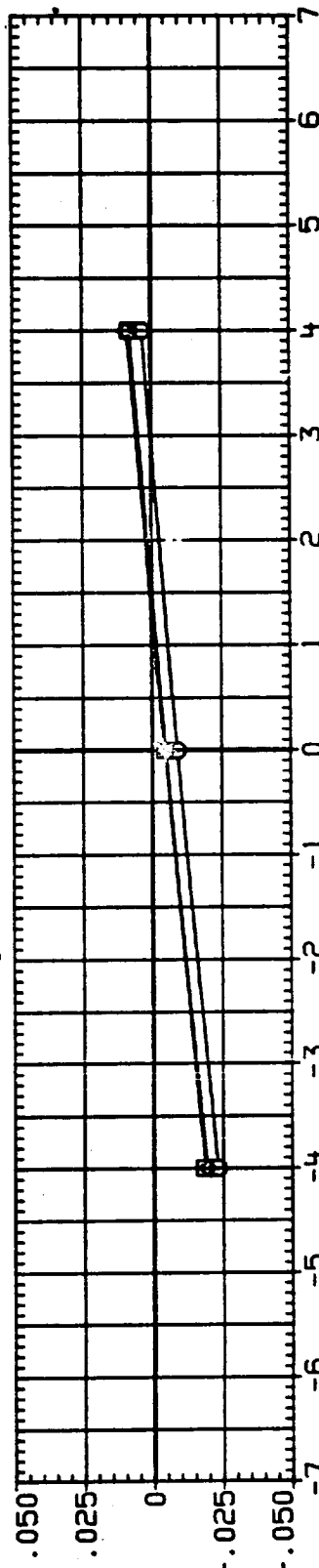
REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 15. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS OFF

13J008 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

BETA
 -4.000
 .000
 4.000
 MACH
 10.000
 9.000
 10.000
 9.000
 10.000
 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

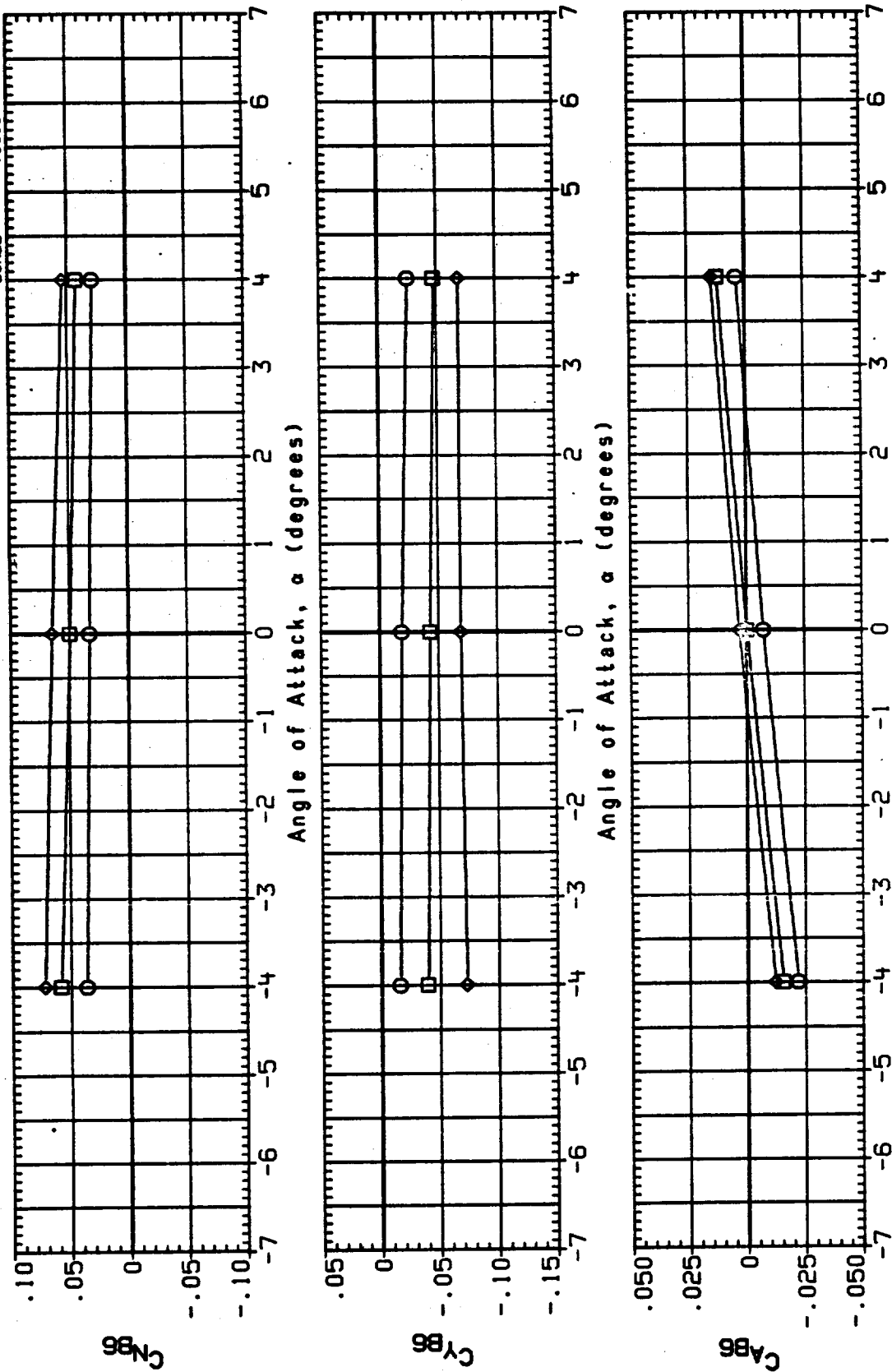


FIGURE 15. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS OFF

13J009 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

BETA	PARAMETRIC VALUES
-4.000	MACH 1.100
.000	18-ELV 10.000
4.000	08-ELV 9.000

REFERENCE INFORMATION	
SREF	.0171 SQ. IN.
LREF	.0000 INCHES
BREF	.0000 INCHES
XMRP	.0000 IN. XT
YMRP	.0000 IN. YT
ZMRP	.0000 IN. ZT
SCALE	.0300

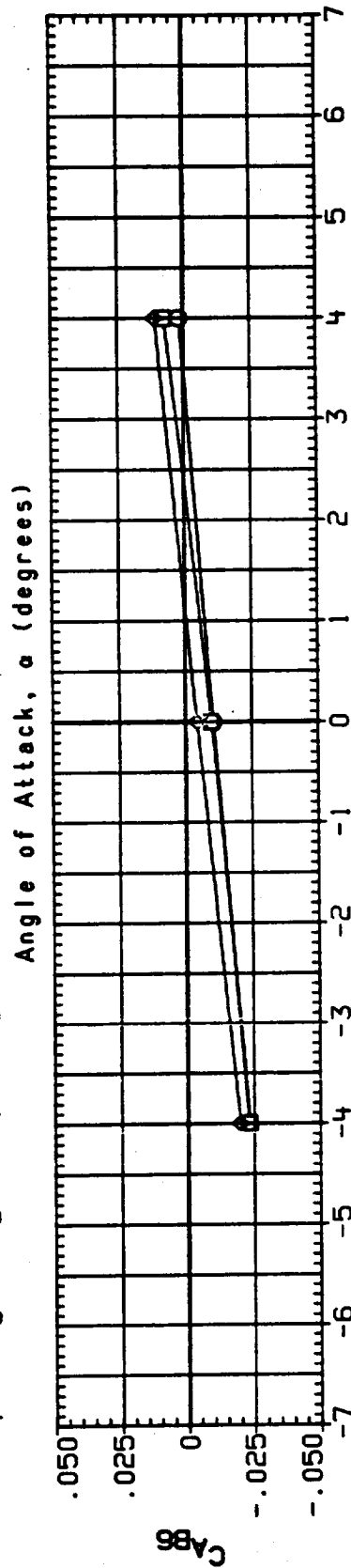
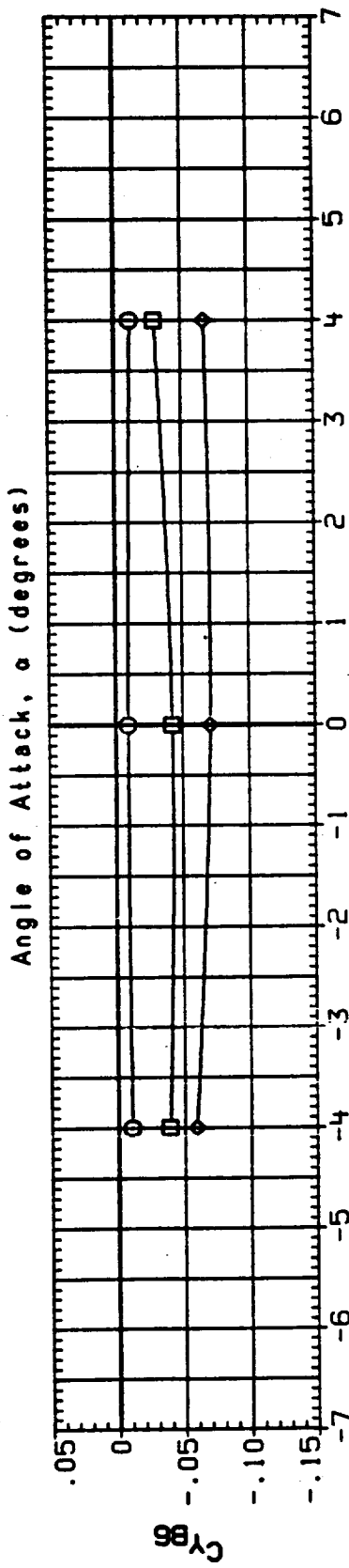
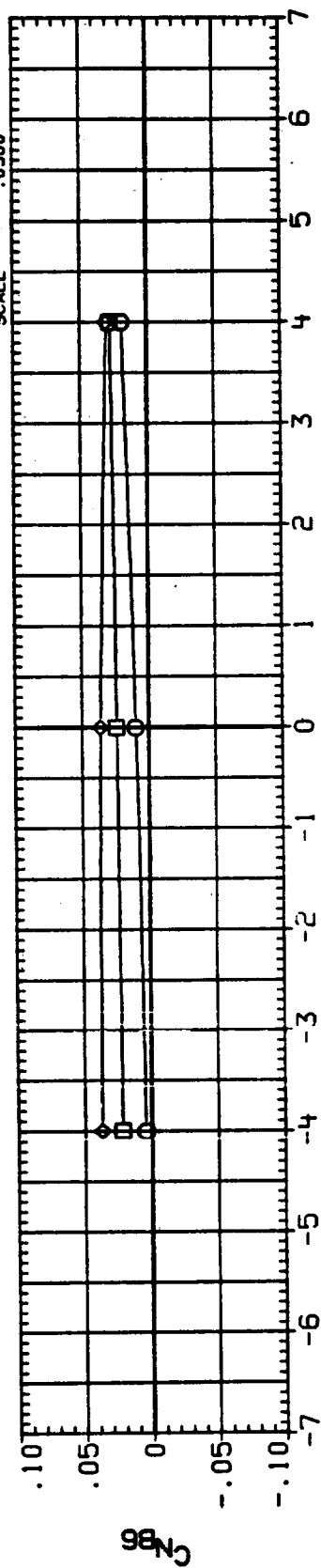


FIGURE 15. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS OFF

13010 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

SYMBOL BETA PARAMETRIC VALUES
 ○ MACH 1.250
 □ IB-ELV 10.000
 ◇ OB-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XPRP .0000 IN. XT
 YPRP .0000 IN. YT
 ZPRP .0000 IN. ZT
 SCALE .0300

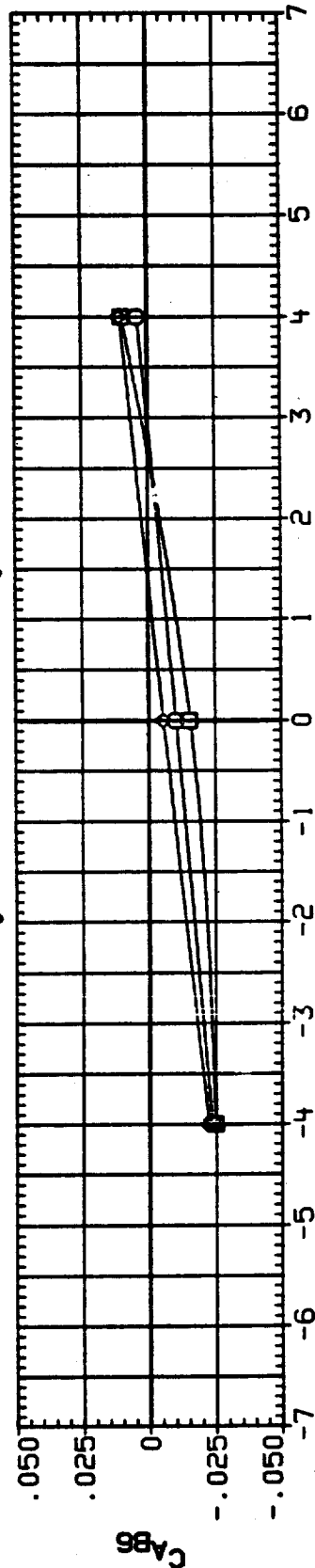
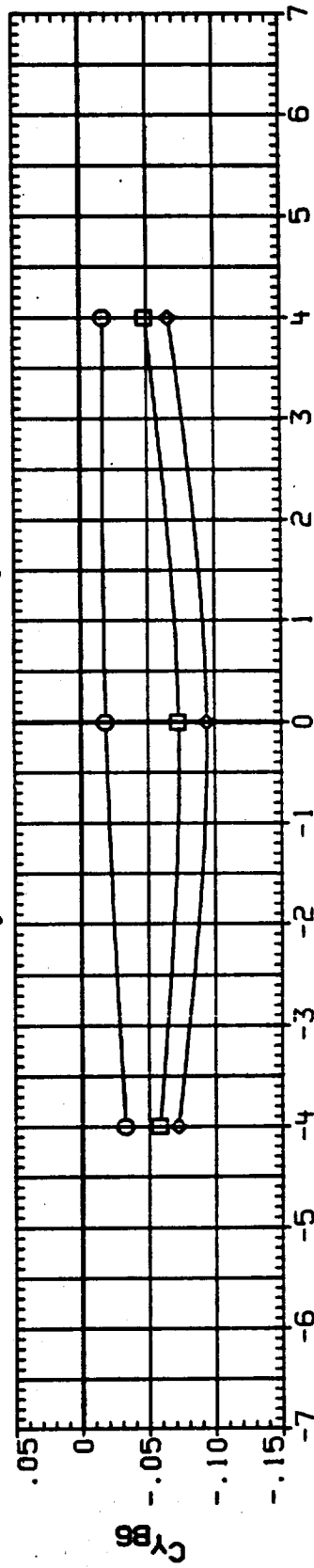
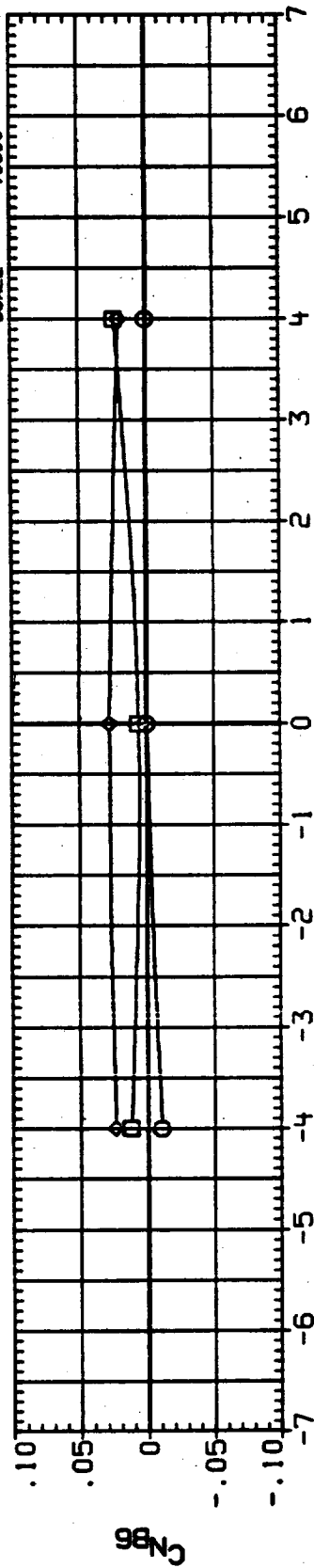


FIGURE 15. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS OFF

130D11 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 .000 18-ELV 10.000
 4.000 08-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

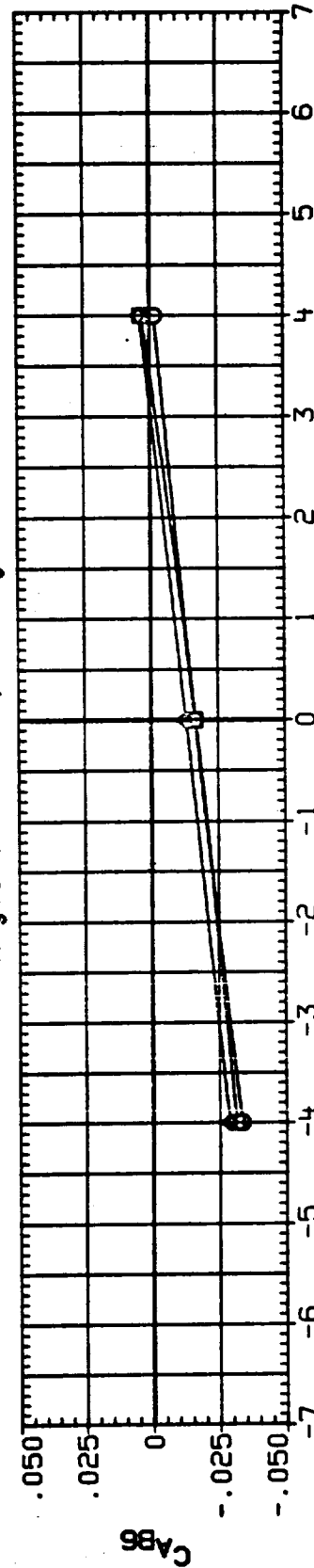
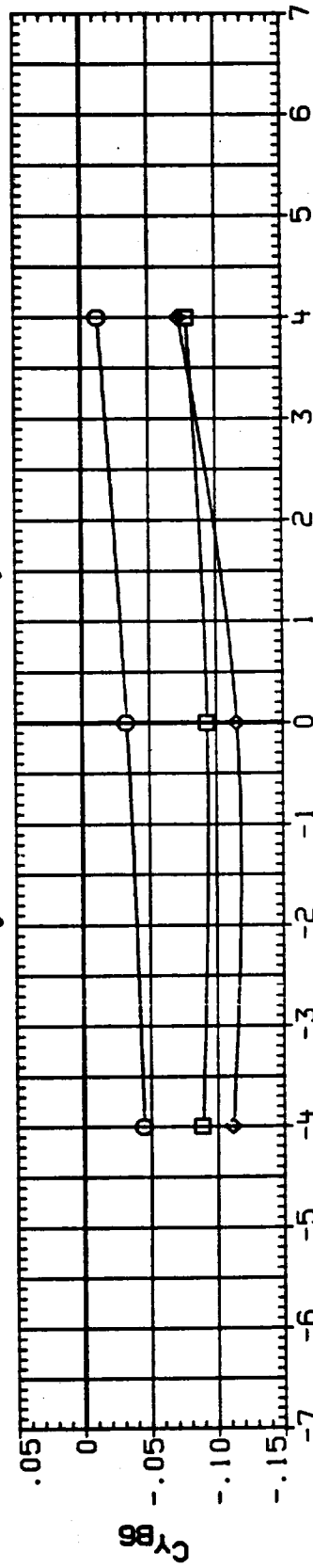
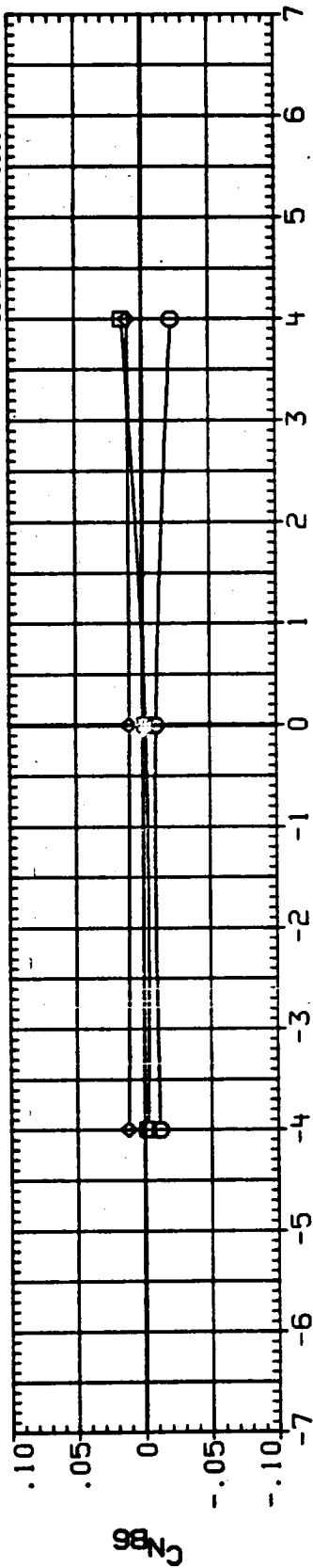


FIGURE 15. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS OFF

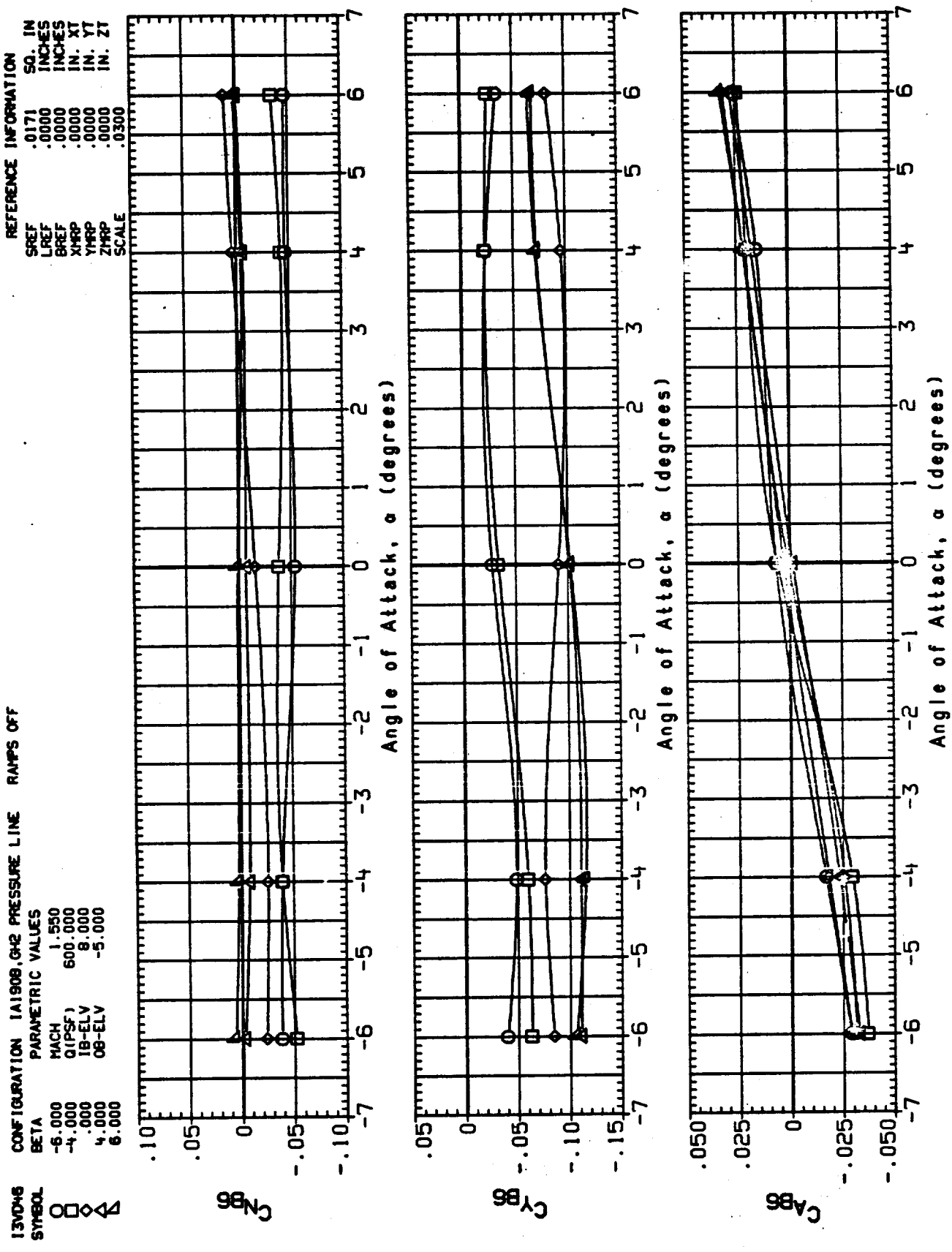


FIGURE 15. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMP OFF

13V047 CONFIGURATION 1A1908.GH2 PRESSURE LINE RAMPS OFF

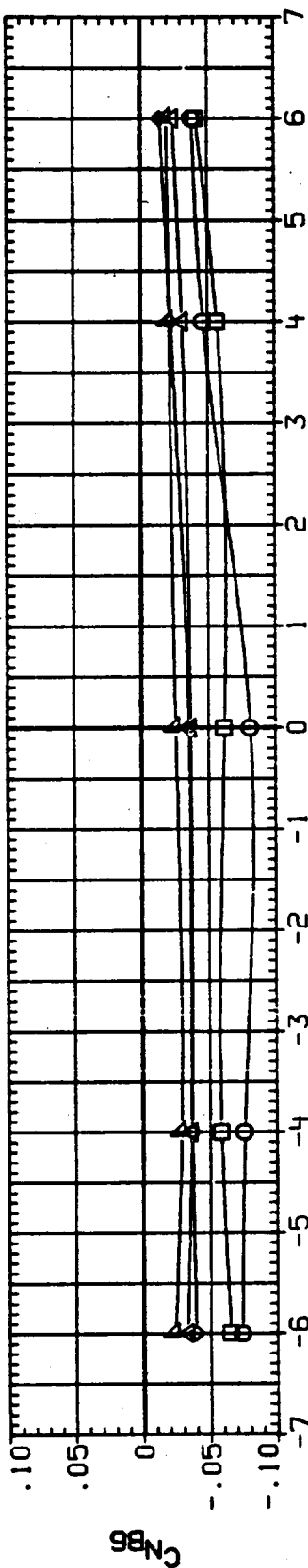
SYMBOL
 \square
 \diamond
 \triangle

BETA
 -6.000
 -4.000
 .000
 4.000
 6.000

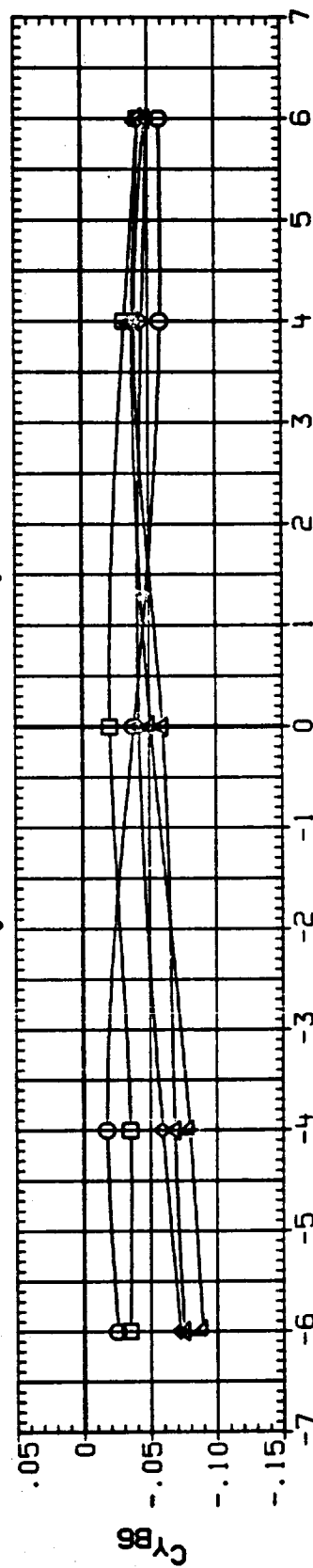
PARAMETRIC VALUES
 MACH 2.000
 Q(PSF) 600.000
 IB-ELV 8.000
 OB-ELV -5.000

REFERENCE INFORMATION

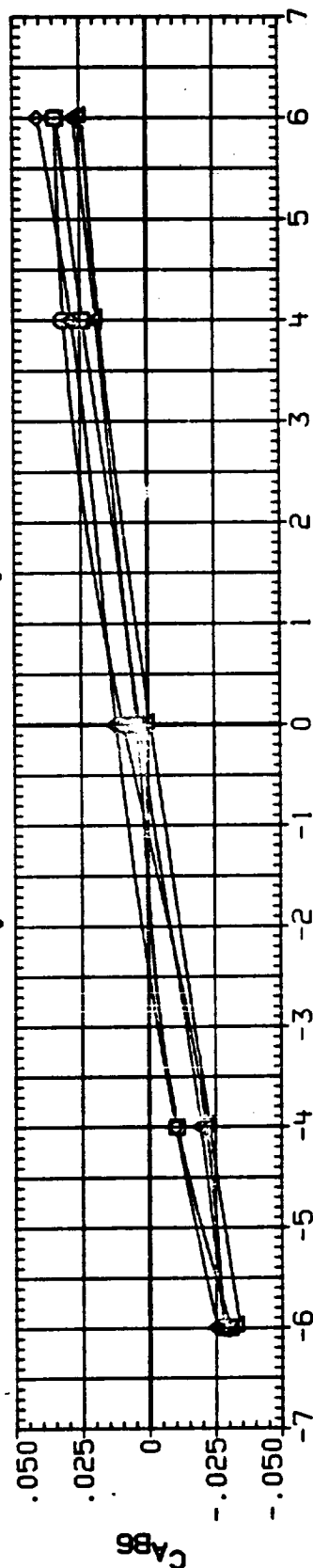
SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XHRP .0000 IN. XT
 YHRP .0000 IN. YT
 ZHRP .0000 IN. ZT
 SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 15. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE.
 XT = 1074.6 TO 1270.0, RAMPS OFF

REFERENCE INFORMATION	
SREF	.0171 SQ. IN
LREF	.0000 INCHES
SRF	.0000 INCHES
XRFP	.0000 IN. XT
TYRP	.0000 IN. YT
ZMRP	.0000 IN. ZT
SCALE	.0300

13VD48
SYMBOL

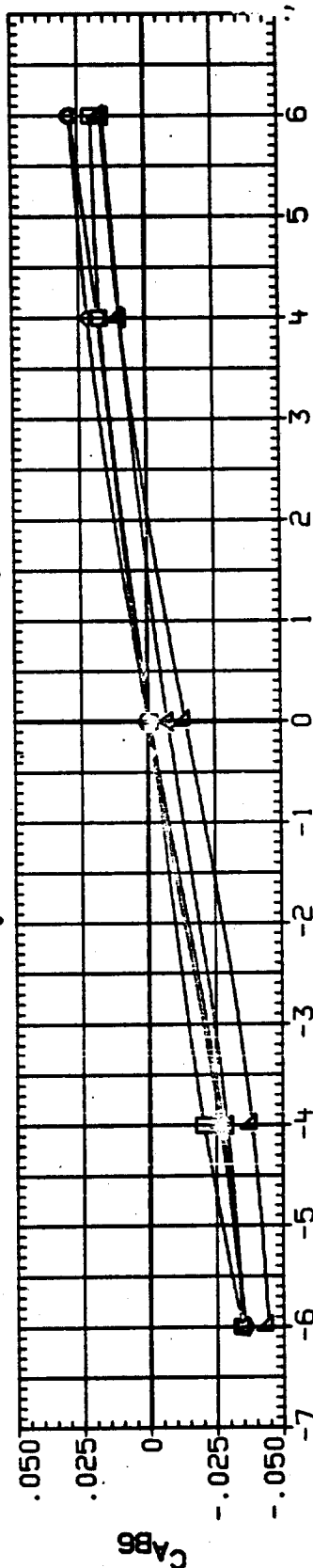
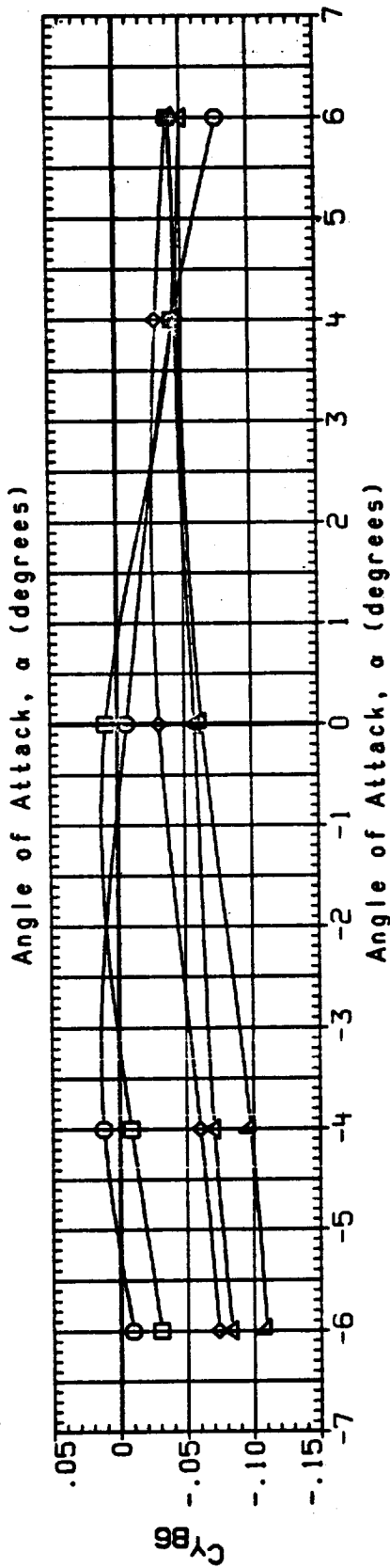
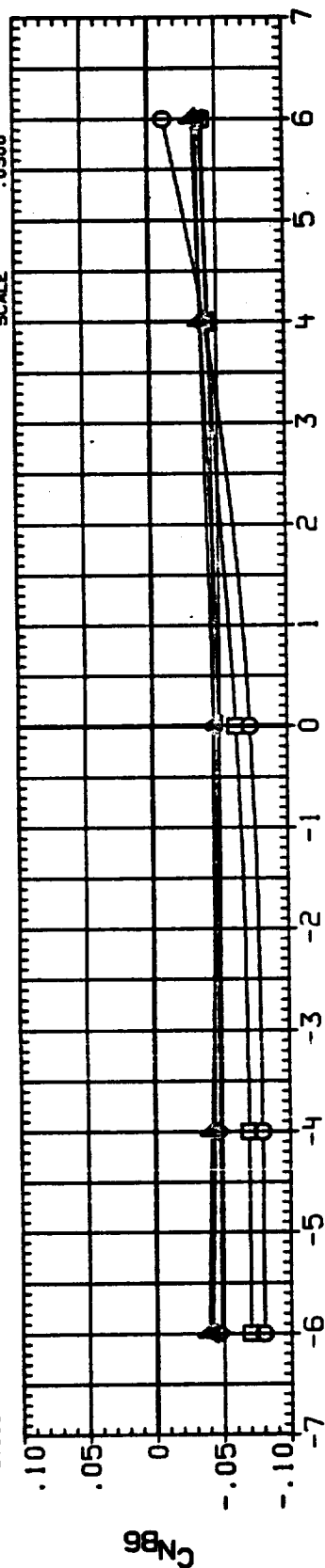


FIGURE 15. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1074.6 TO 1270.0, RAMPS OFF

13J002 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

SYMBOL \diamond \square \circ

BETA
-4.000
.000
4.000

PARAMETRIC VALUES
MACH .600
18-ELV 10.000
08-ELV 9.000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

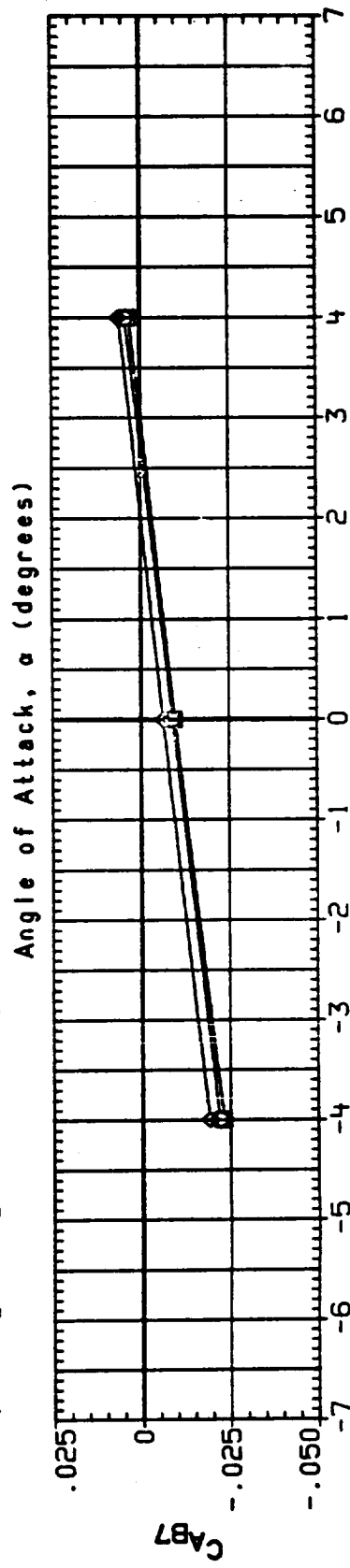
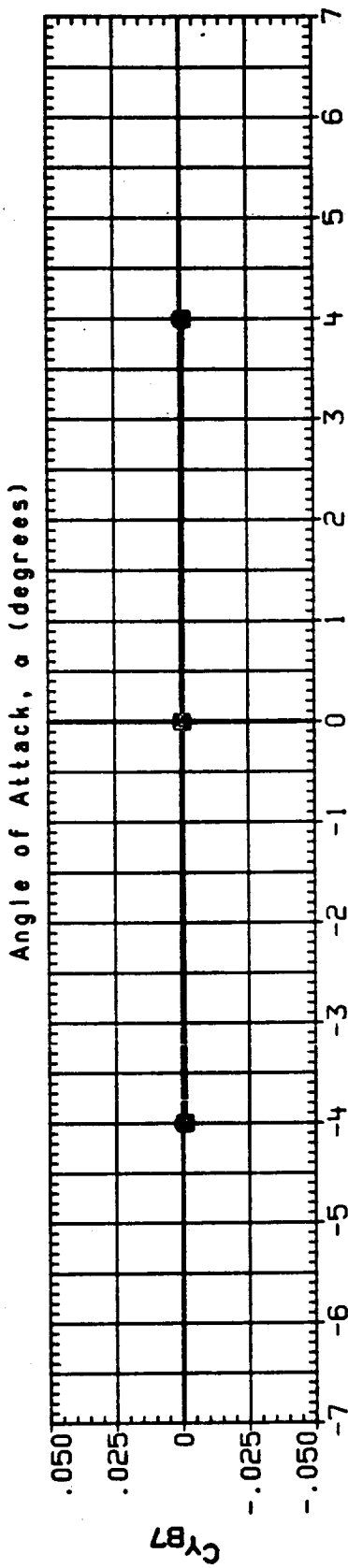
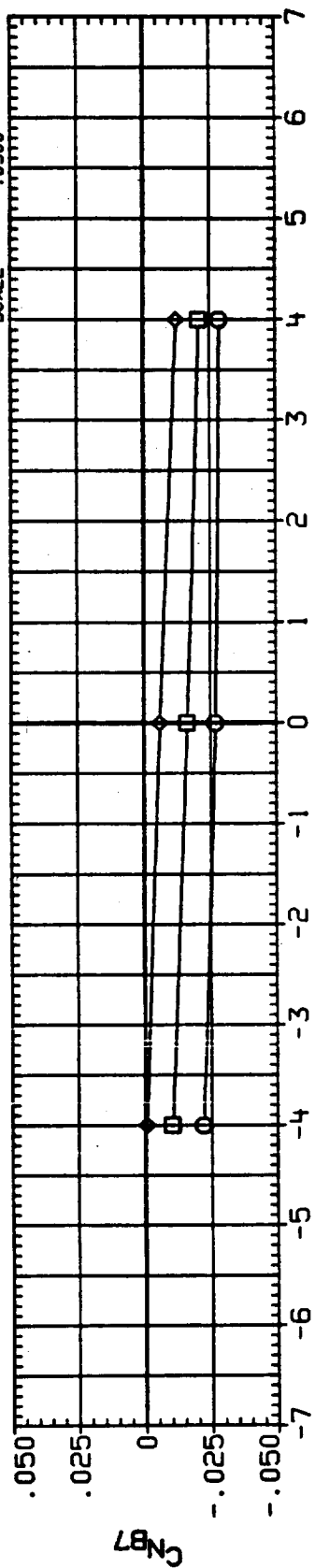


FIGURE 16. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS ON

131003 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON
 SYMBOL BETA PARAMETRIC VALUES
 -4.000 MACH .900
 .000 18-ELV 10.000
 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XGRP .0000 IN. XT
 YGRP .0000 IN. YT
 ZGRP .0000 IN. ZT
 SCALE .0300

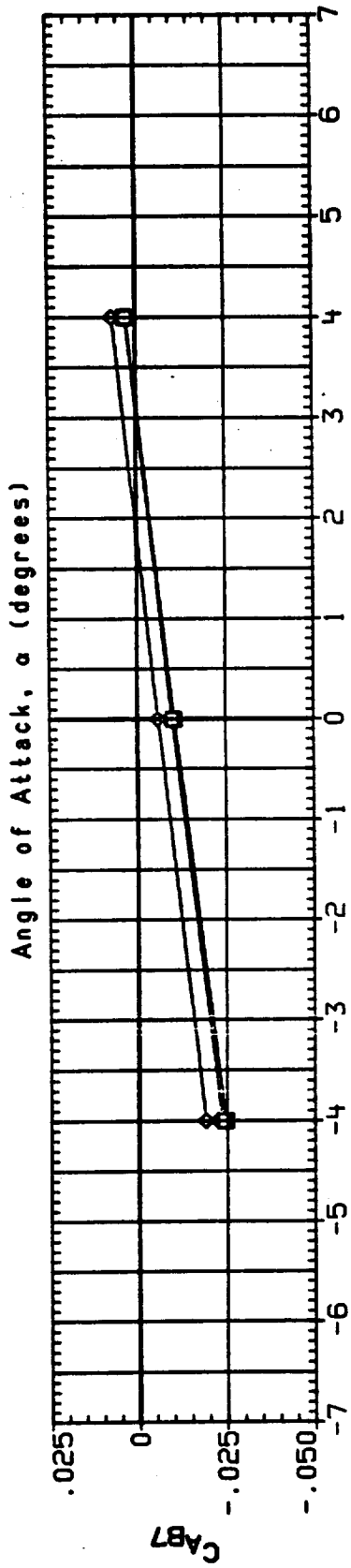
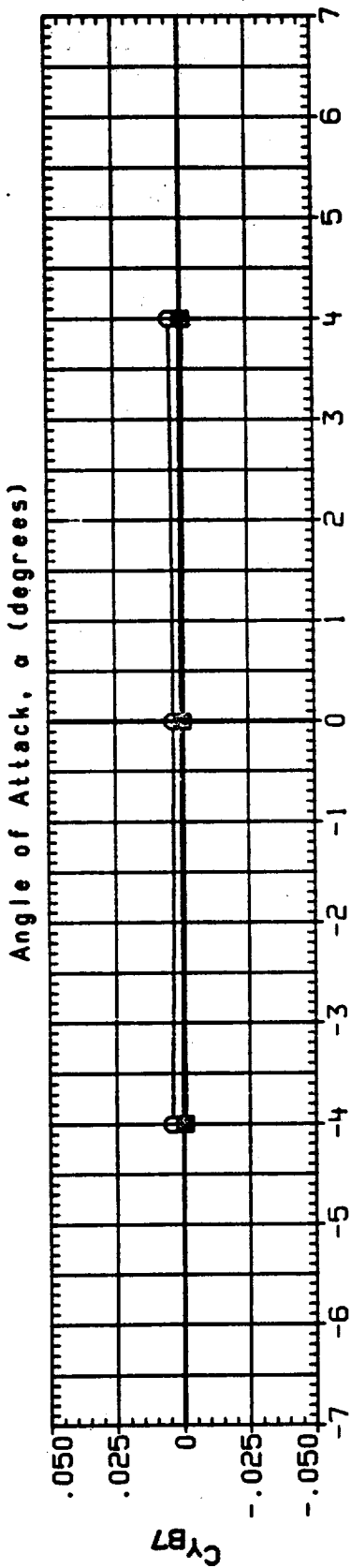
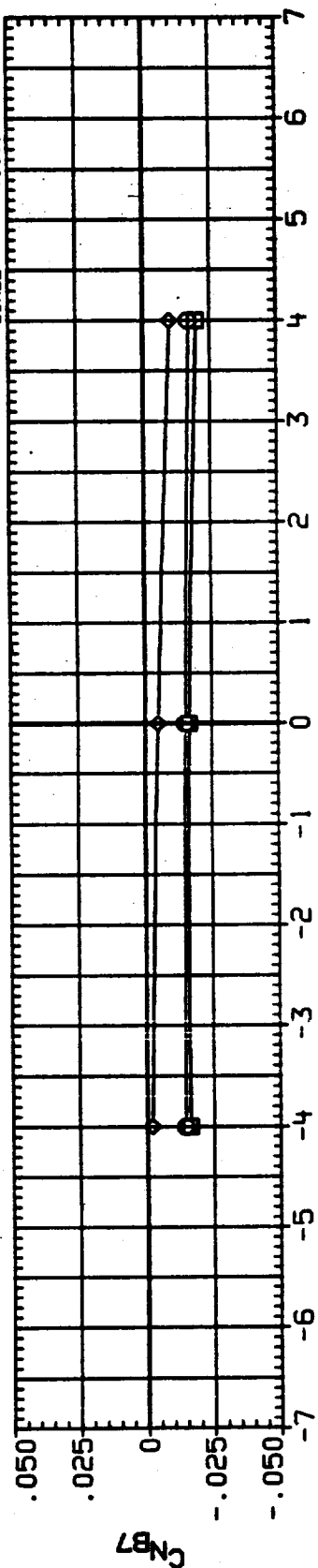


FIGURE 16. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS ON

13J004 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

SYMBOL

BETA
-4.000
.000
4.000

PARAMETRIC VALUES
MACH 1.100
IB-ELV 10.000
OB-ELV 9.000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

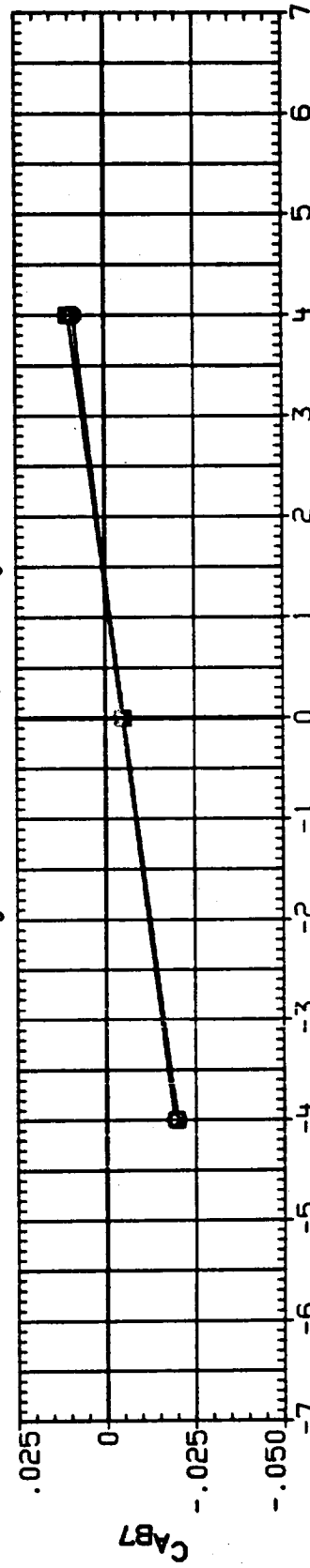
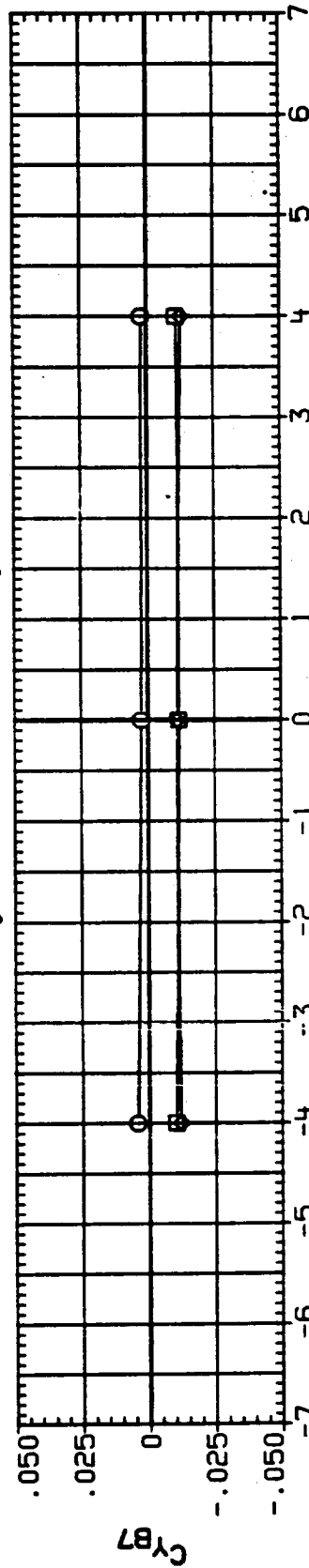
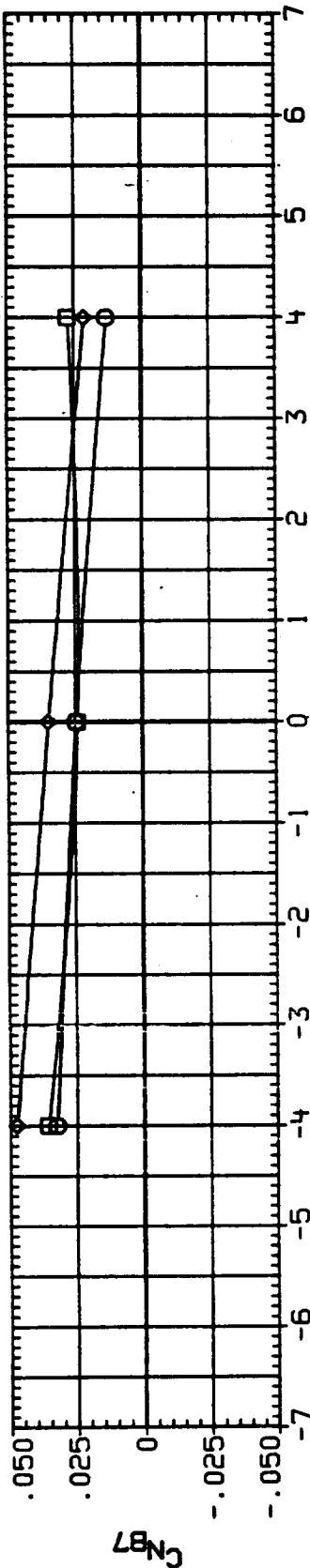


FIGURE 16. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS ON

13J005 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

SYMBOL \diamond \square \circ \bullet

BETA -4.000 .000 4.000

PARAMETRIC VALUES

MACH 1.250

18-ELV 10.000

08-ELV .000

REFERENCE INFORMATION

SREF .0171 SQ. IN.

LREF .0000 INCHES

BREF .0000 INCHES

XPRP .0000 IN. XT

YPRP .0000 IN. YT

ZPRP .0000 IN. ZT

SCALE .0300

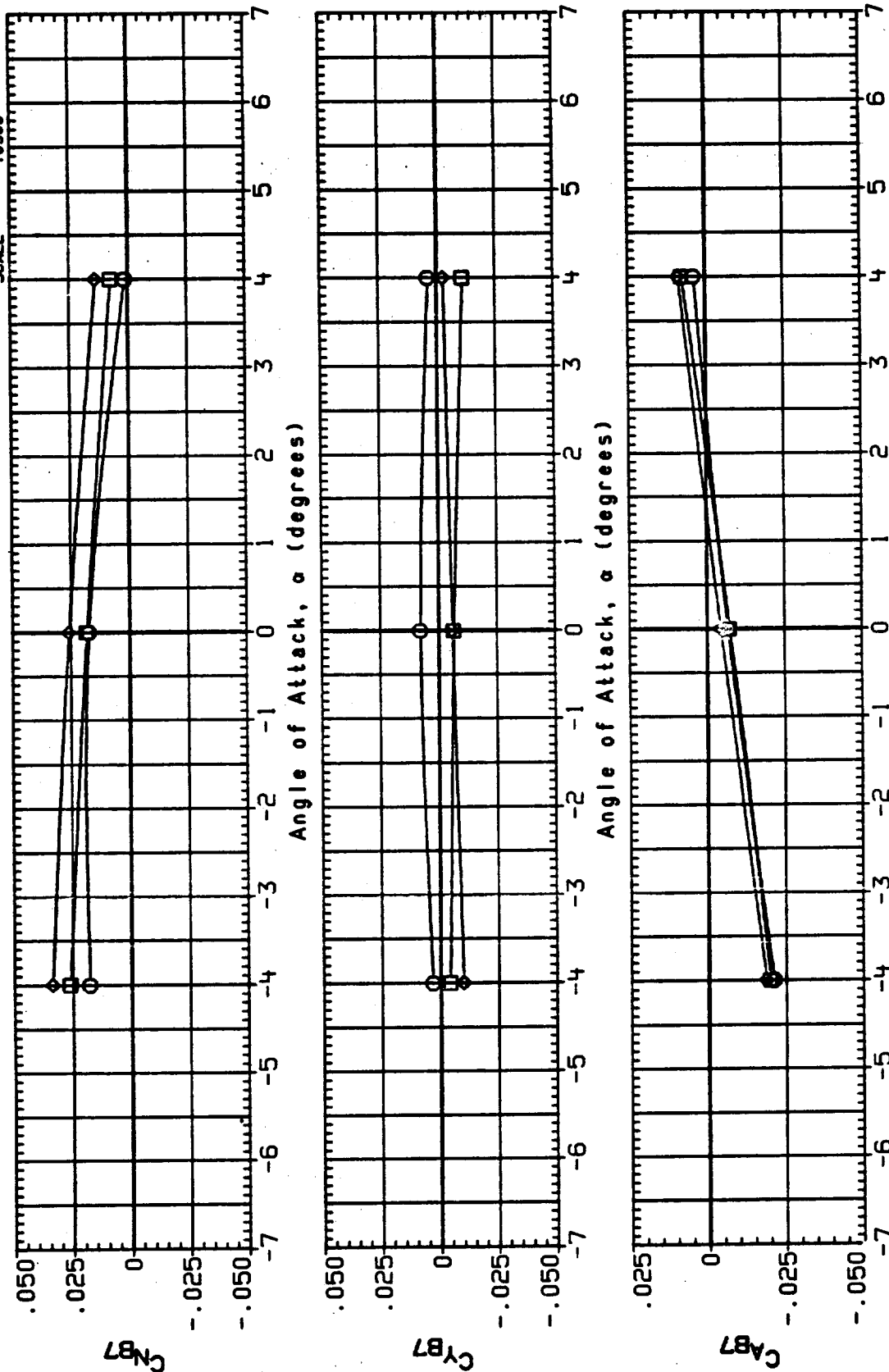


FIGURE 16. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS ON

13.006 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

SYMBOL \diamond \square
 BETA .000
 MACH 1.400
 1B-ELV 10.000
 0B-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XRRP .0000 IN. XT
 YRRP .0000 IN. YT
 ZRRP .0000 IN. ZT
 SCALE .0300

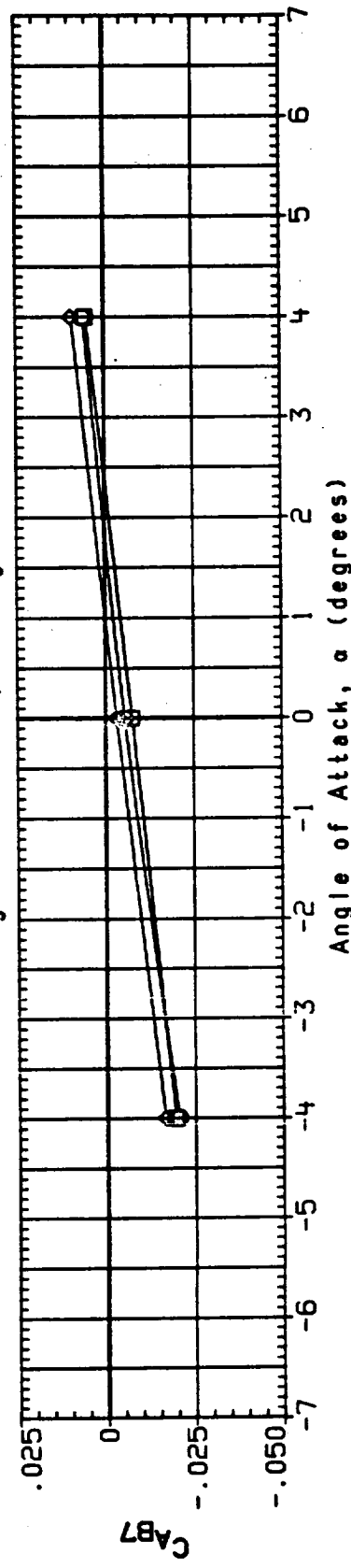
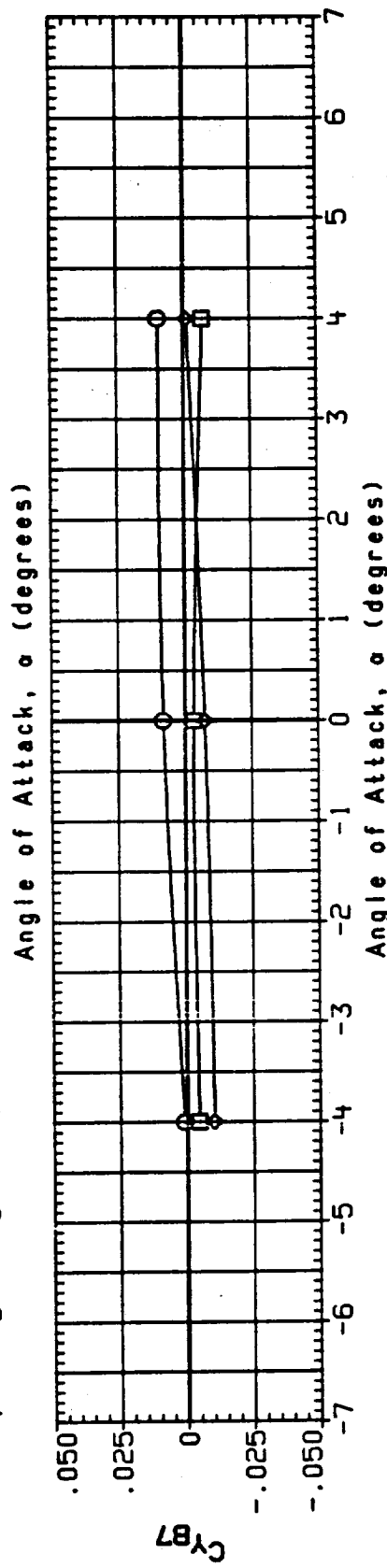
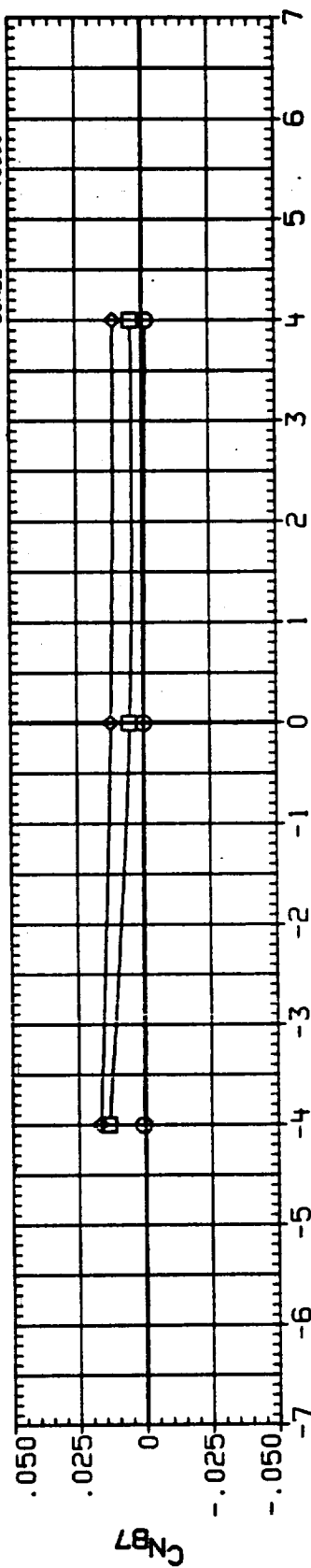


FIGURE 16. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS ON

REFERENCE INFORMATION	
SREF	.0171 SQ. IN
LREF	.0000 INCHES
BREF	.0000 INCHES
XMRP	.0000 IN. XT
YMRP	.0000 IN. YT
ZMRP	.0000 IN. ZT
SCALE	.0300

13VD43
SYMBOL

BETA	PARAMETRIC VALUES
-6.000	MACH 1.550
-4.000	Q(PSF) 600.000
.000	18-ELV 8.000
4.000	08-ELV -5.000
6.000	

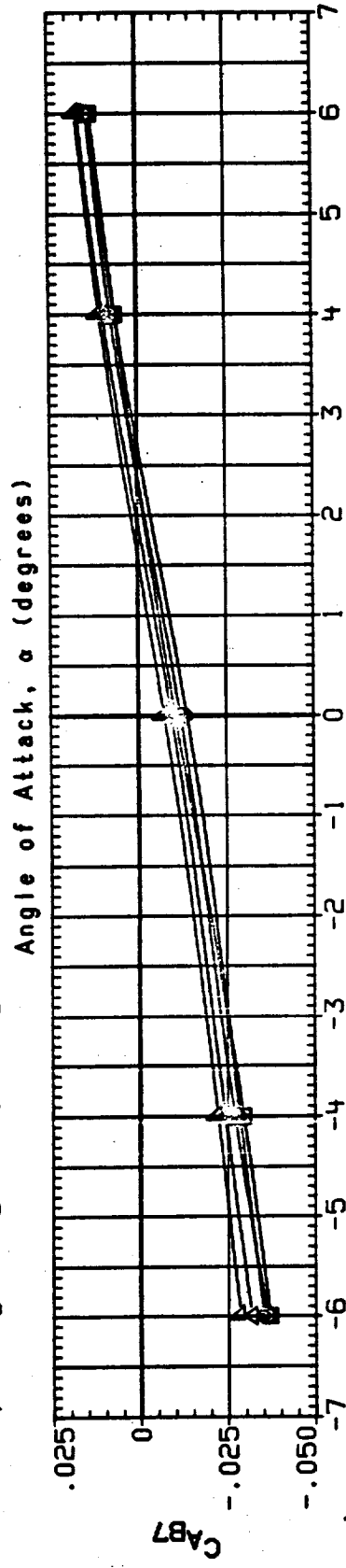
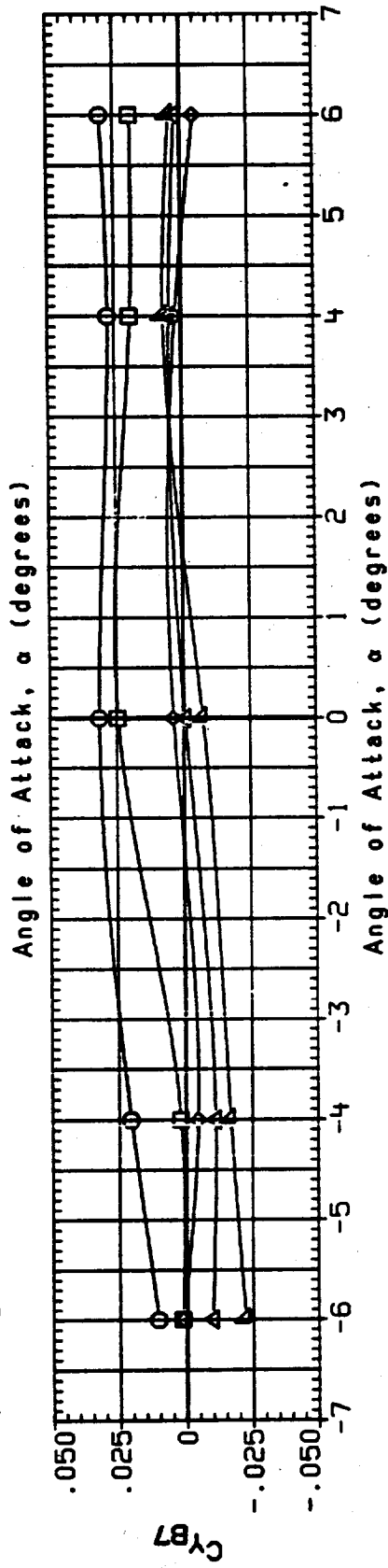
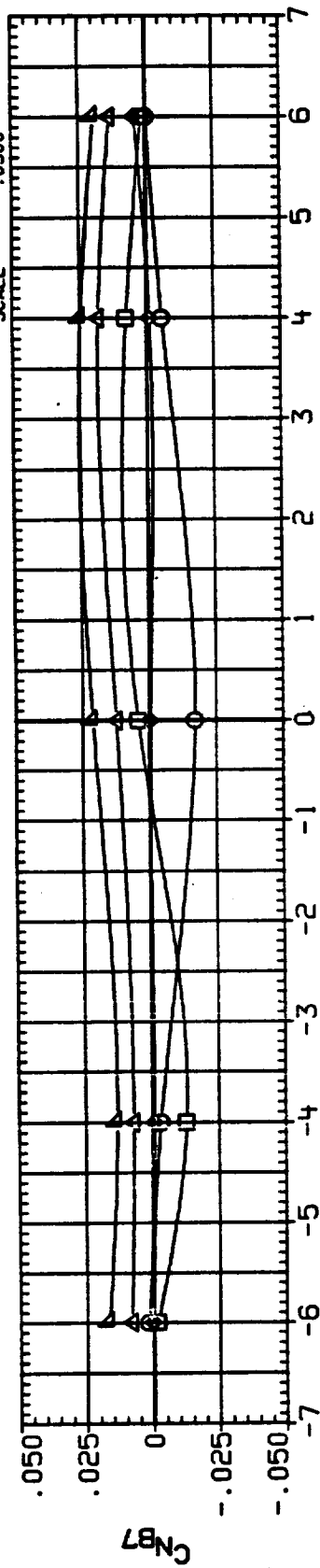


FIGURE 16. Angle of Attack, α (degrees)
AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE,
XT = 1399.4 TO 1593.2, RAMPS ON

1370-44
SYMBOL

CONFIGURATION 1A190B.042 PRESSURE LINE RAMPS ON

BETA	PARAMETRIC VALUES
-6.000	MACH 2.000
-4.000	Q(PSF) 600.000
.000	18-ELV 8.000
4.000	08-ELV -5.000
6.000	

REFERENCE INFORMATION

SREF	.0171	SQ. IN
LREF	.0000	INCHES
BREF	.0000	INCHES
XTRP	.0000	IN. XT
YTRP	.0000	IN. YT
ZTRP	.0000	IN. ZT
SCALE	.0300	

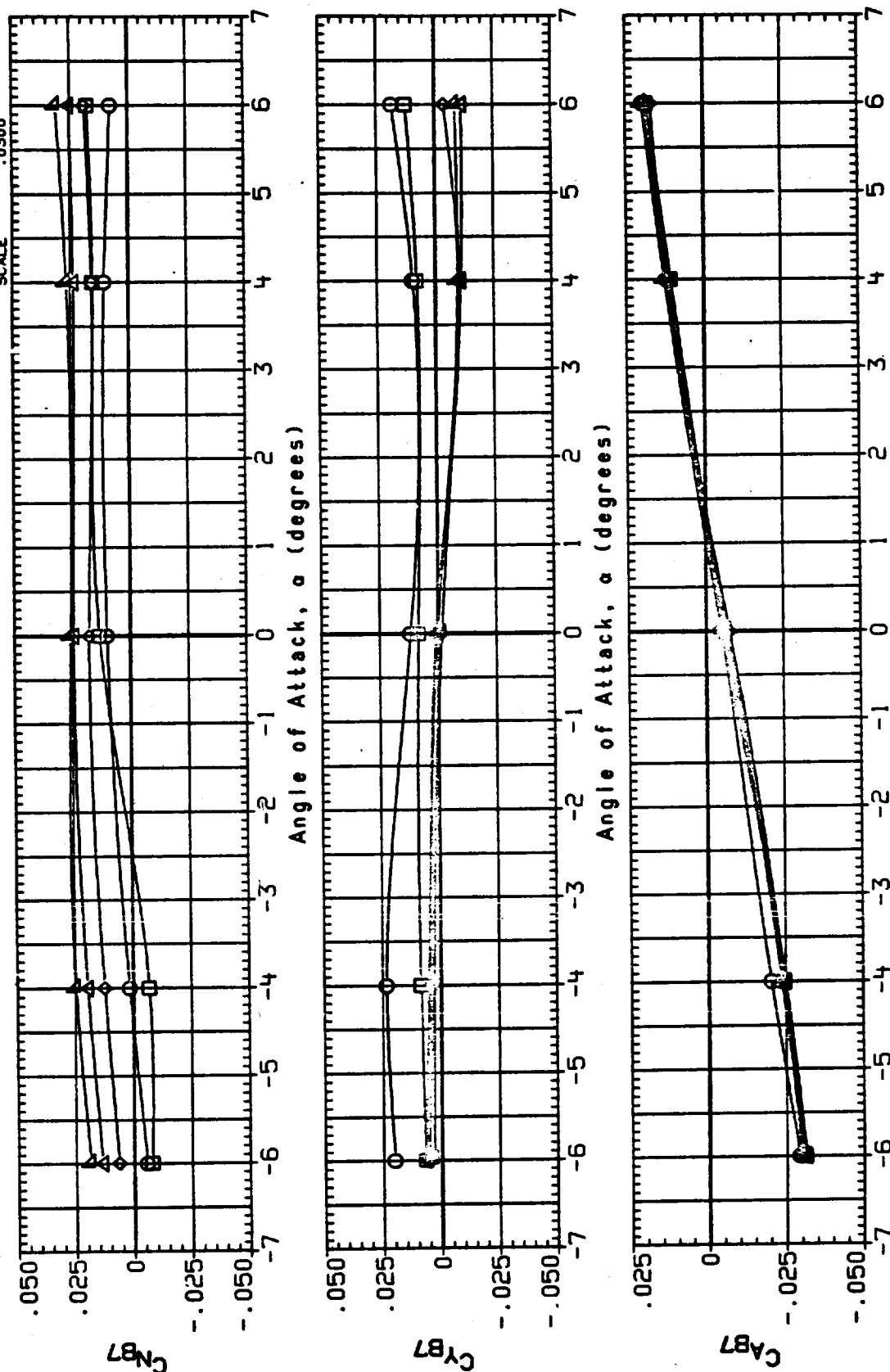


FIGURE 16. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS ON

130045 CONFIGURATION 1A1908.GH2 PRESSURE LINE RAMP5 ON
 SYMBOL BETA PARAMETRIC VALUES
 MACH 2.500
 Q(PSF) 600.000
 IB-ELV 8.000
 OB-ELV -5.000
 7.000
 4.000
 6.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XHRP .0000 IN. XT
 YHRP .0000 IN. YT
 ZHRP .0000 IN. ZT
 SCALE .0300

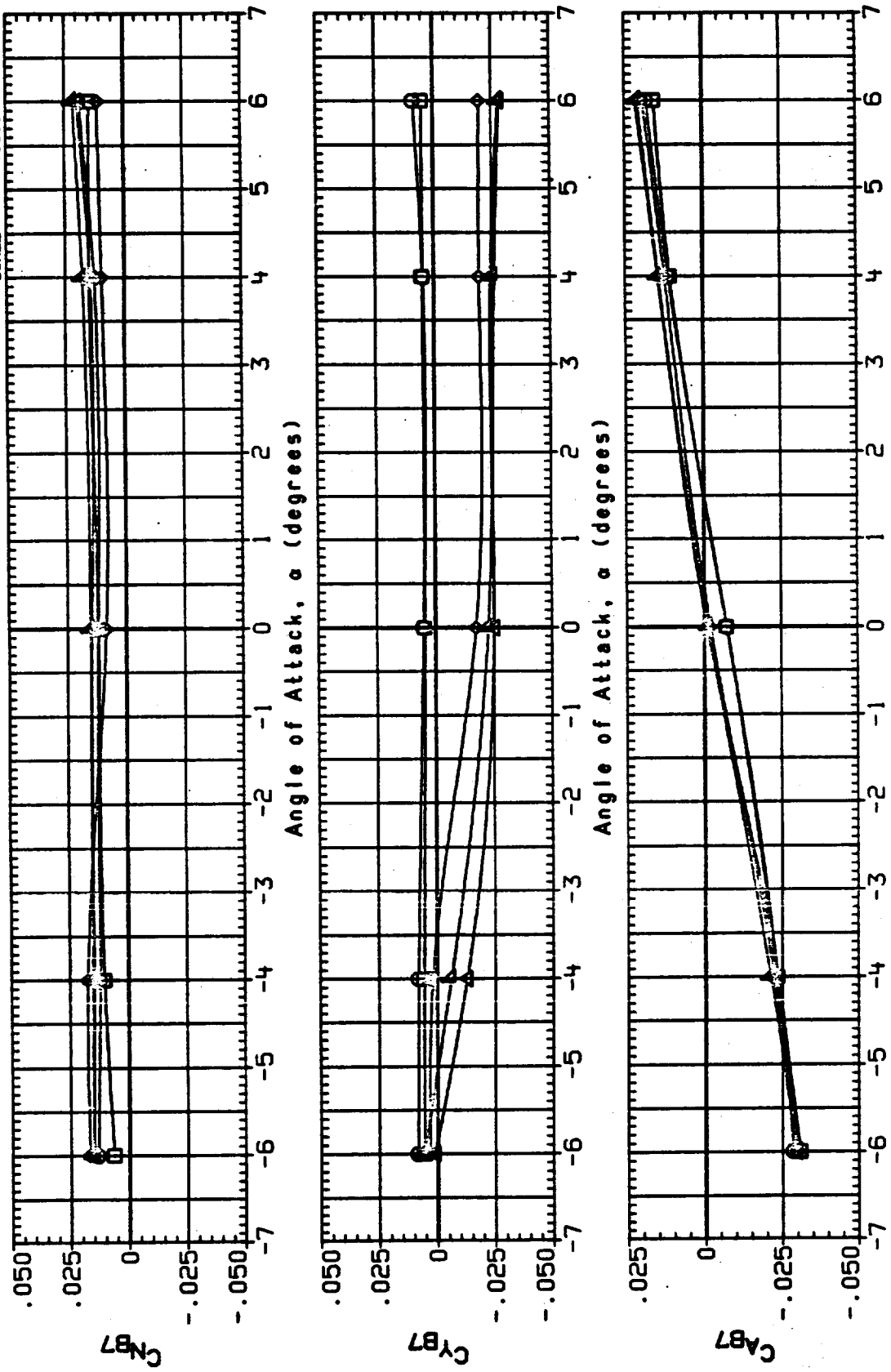


FIGURE 16. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS ON

131007 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF
 SYMBOL BETA PARAMETRIC VALUES
 18-ELV MACH .600
 08-ELV 10.000 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

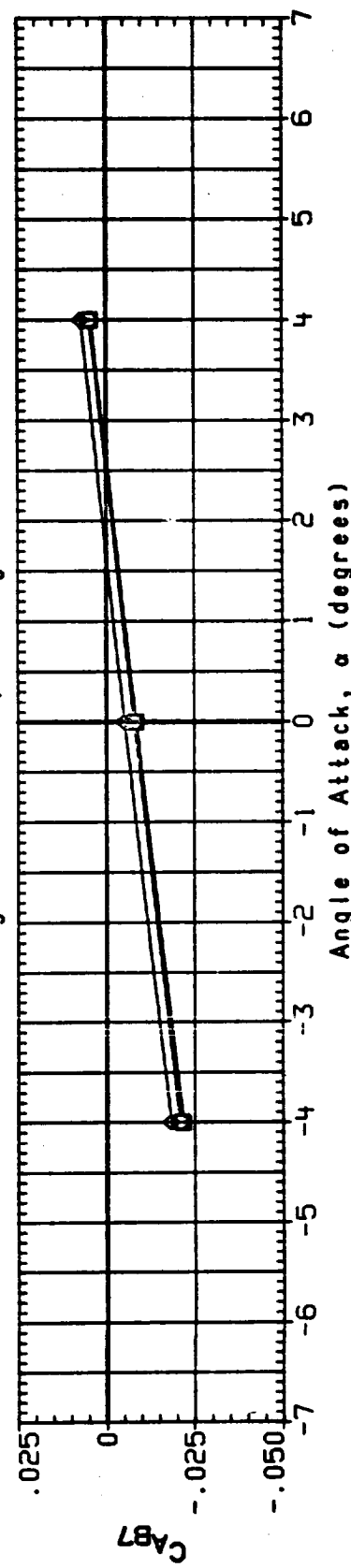
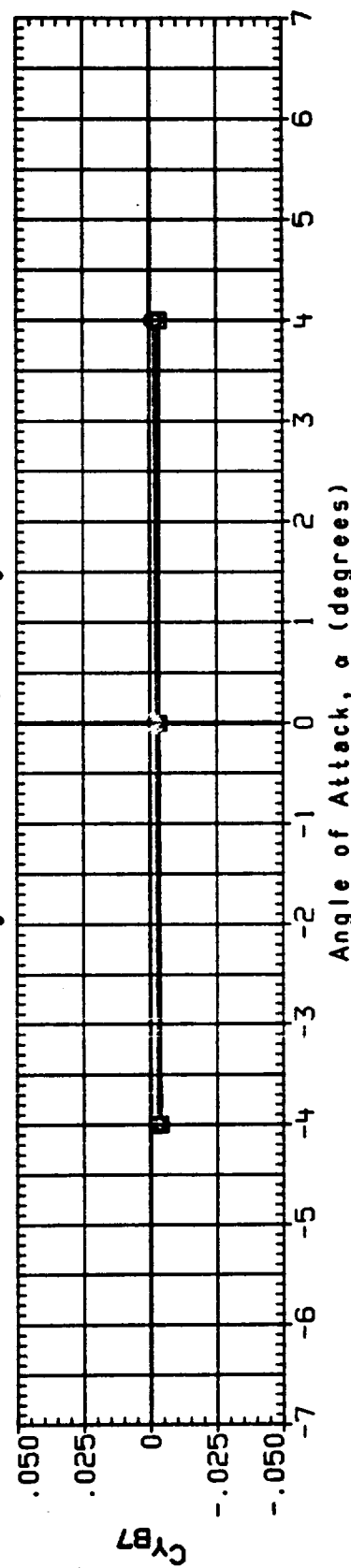
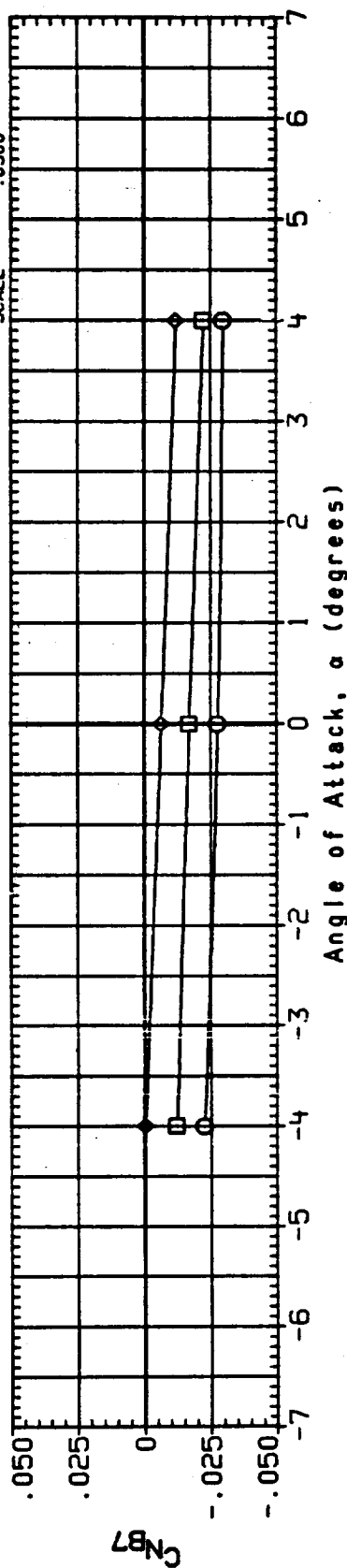


FIGURE 17. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS OFF

130008 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF
 SYMBOL BETA PARAMETRIC VALUES
 -4.000 MACH .900
 .000 IB-ELV 10.000
 4.000 OB-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SO. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

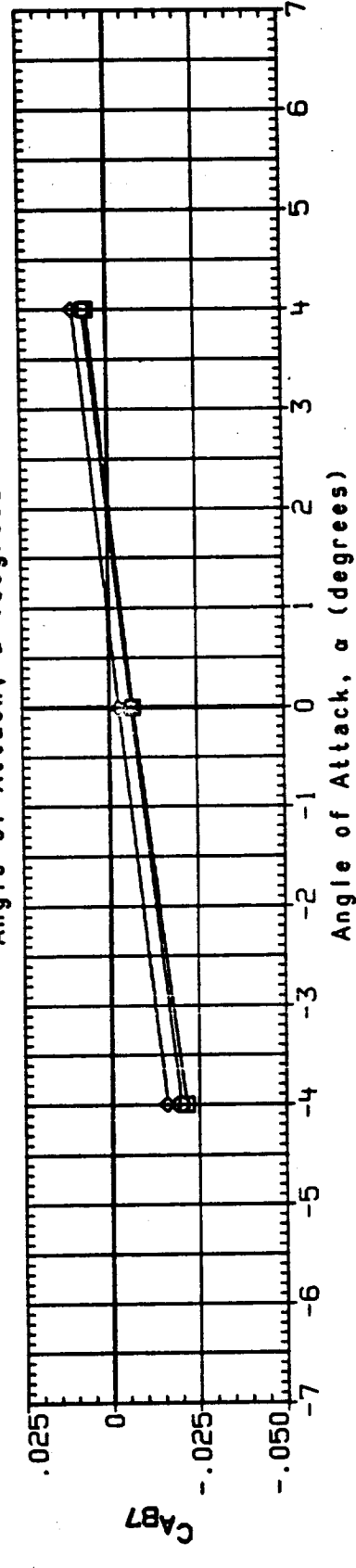
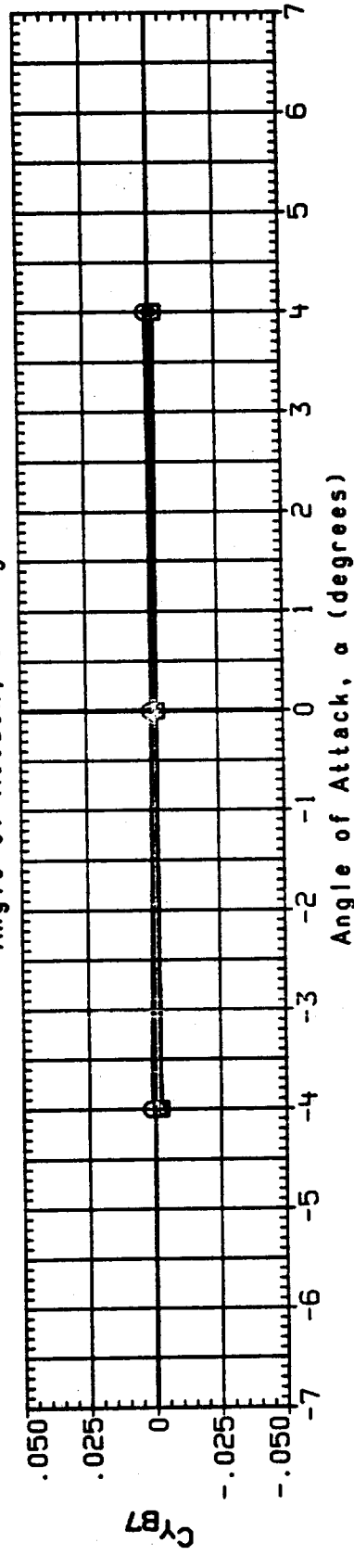
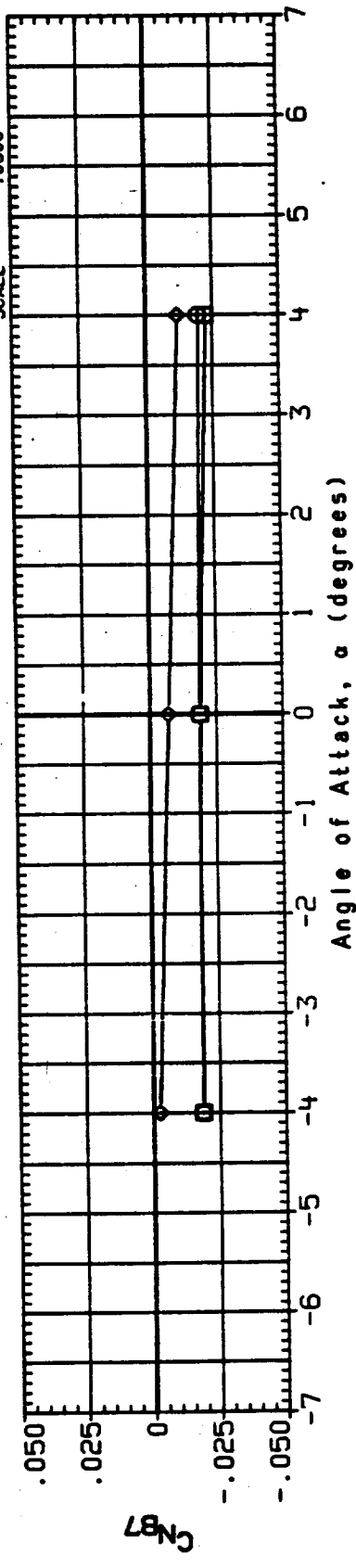


FIGURE 17. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS OFF

130009 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF
 SYMBOL BETA PARAMETRIC VALUES
 □ -4.000 MACH 1.100
 □ .000 18-ELV 10.000
 □ 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

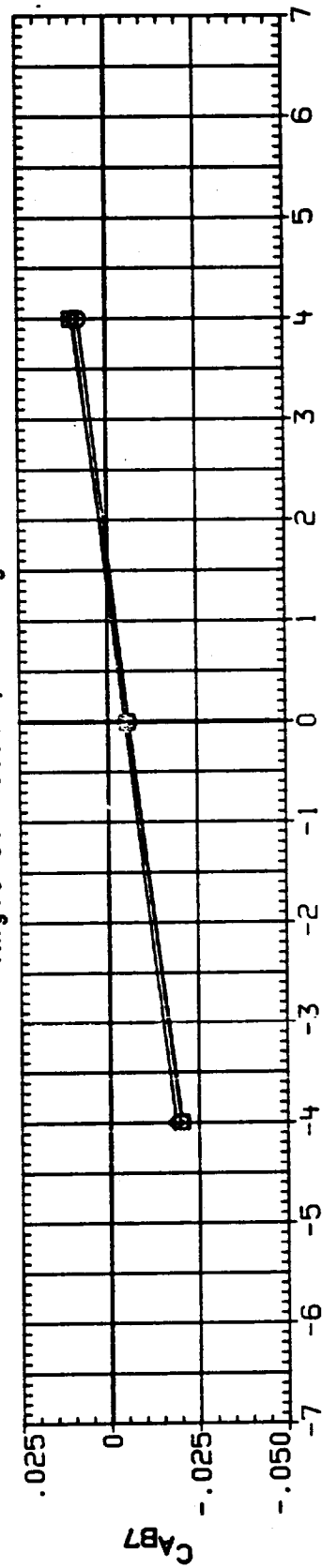
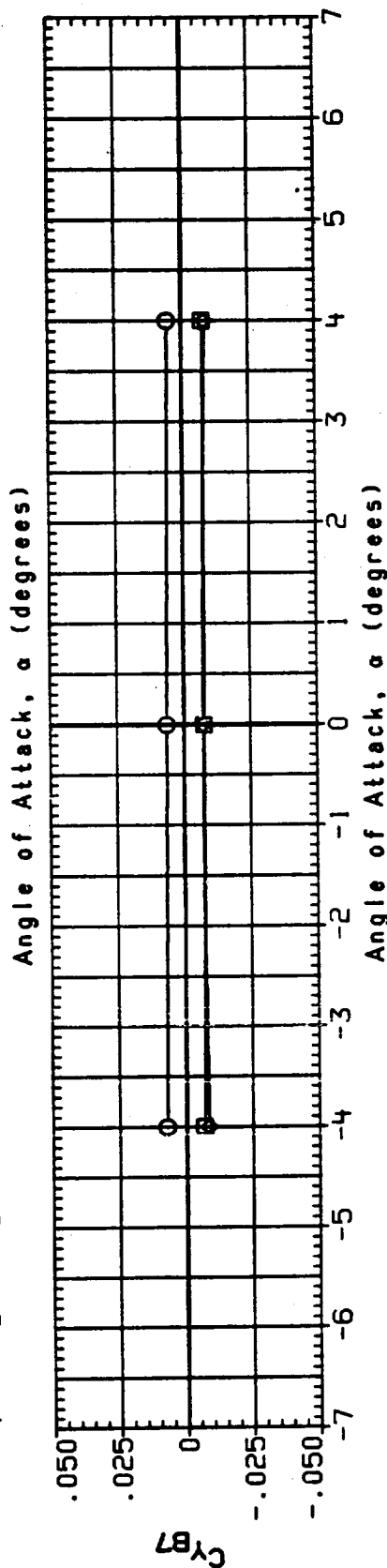
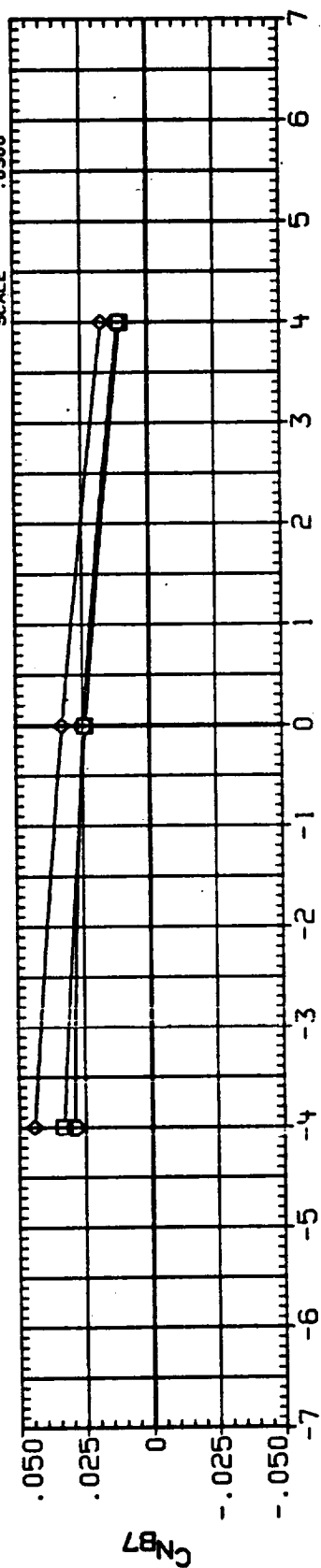


FIGURE 17. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE.
 $X_T = 1399.4$ TO 1593.2 , RAMPS OFF

13010 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

SYMBOL \diamond \square \circ

BETA -4.000 .000 4.000

PARAHETRIC VALUES

MACH 1.250

18-ELV 10.000

08-ELV .000

REFERENCE INFORMATION

SREF .0171 SQ. IN.

LREF .0000 INCHES

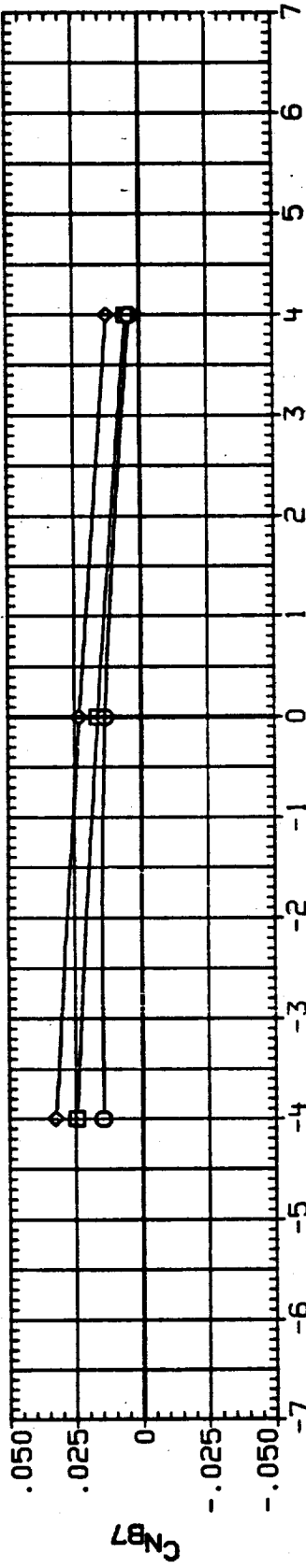
BREF .0000 INCHES

XMRP .0000 IN. XT

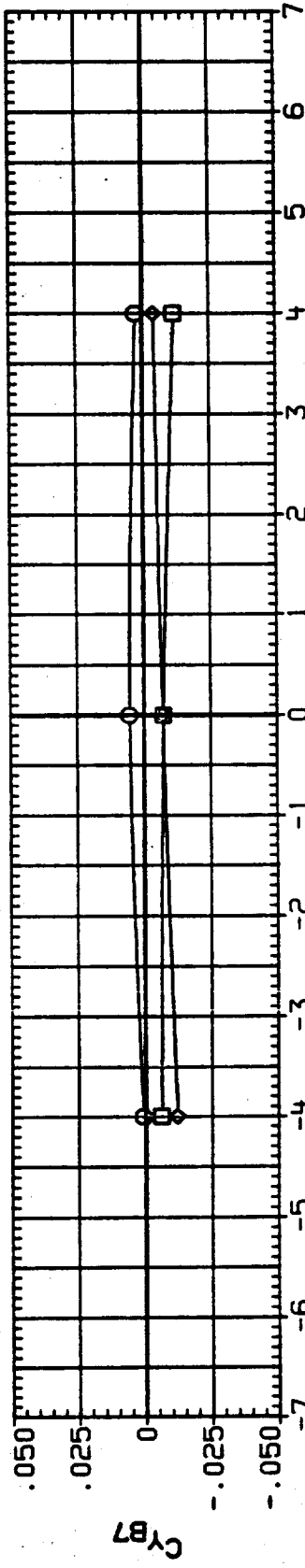
YMRP .0000 IN. YT

ZMRP .0000 IN. ZT

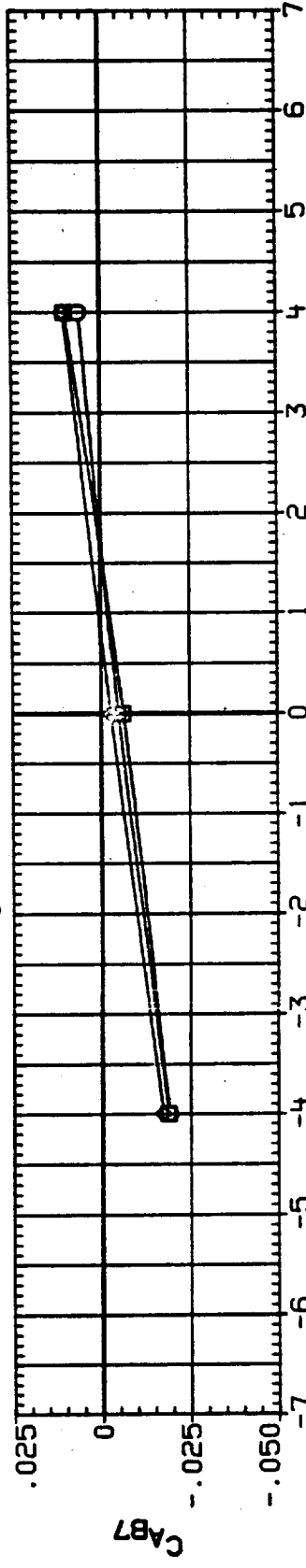
SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 17. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS OFF

130011 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

BETA PARAMETRIC VALUES
 -4.000 MACH 1.400
 .000 IB-ELV 10.000
 4.000 OB-ELV .000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 YMRP .0000 IN. XT
 ZMRP .0000 IN. YT
 SCALE .0300

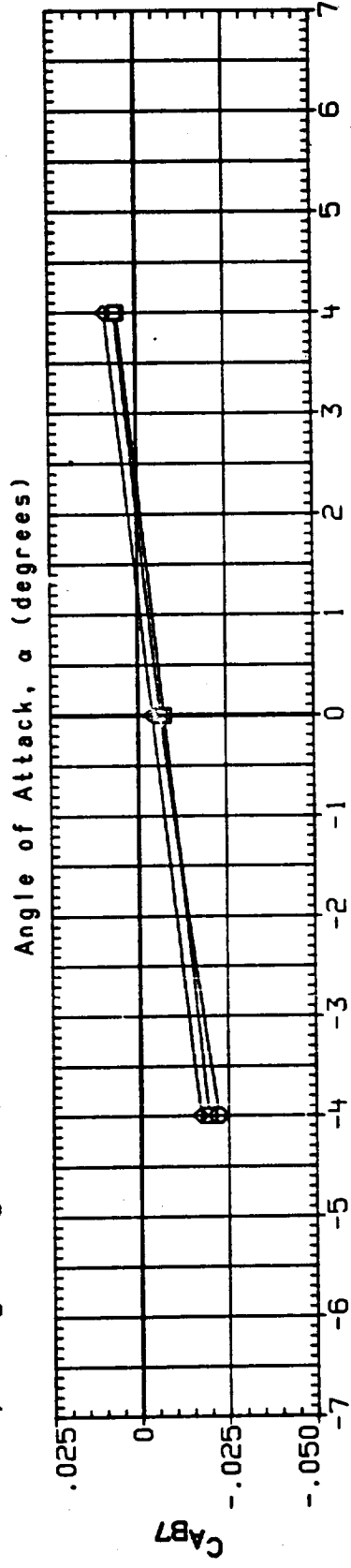
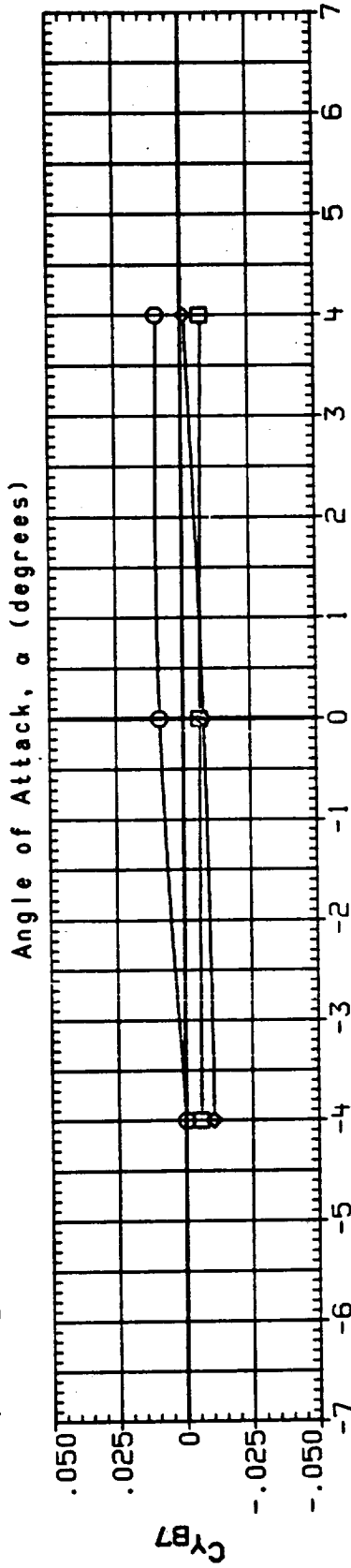
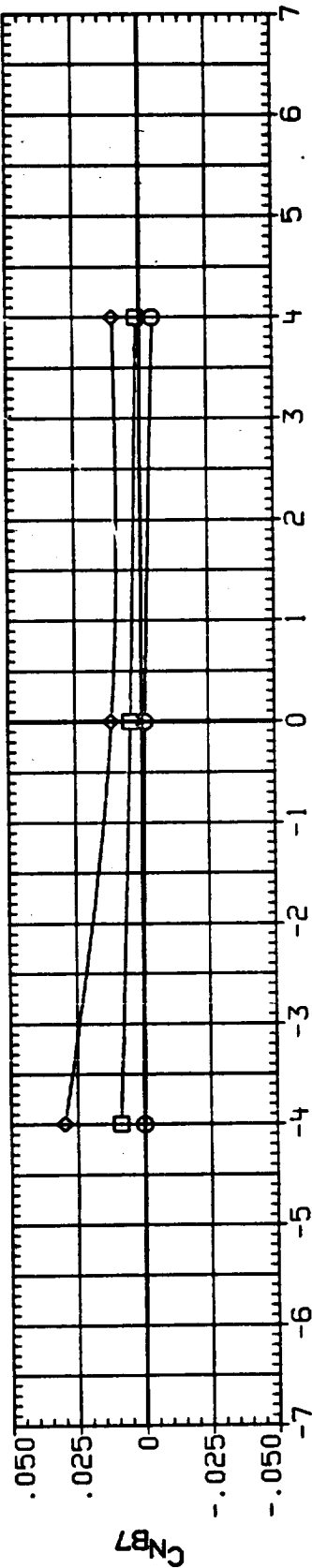


FIGURE 17. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS OFF

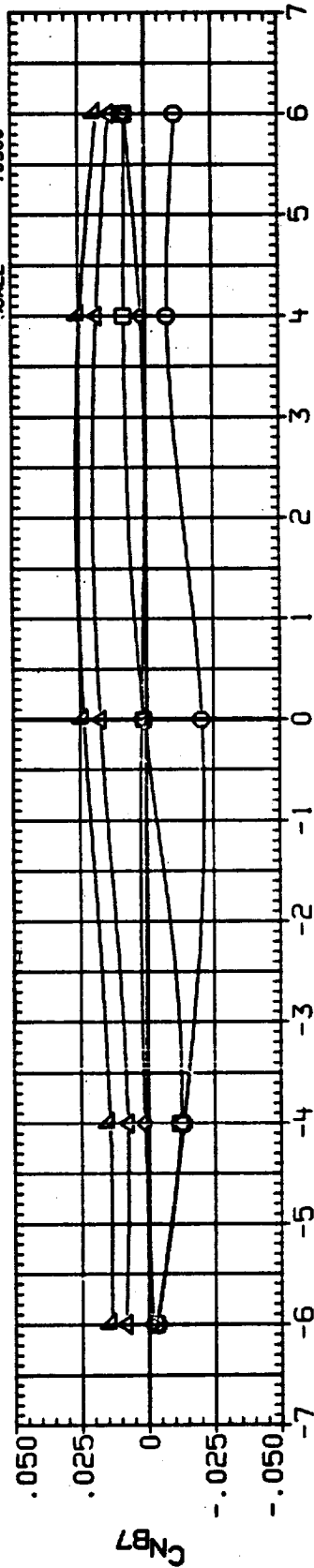
CONFIGURATION 1A1908, GH2 PRESSURE LINE RAMPS OFF

13V048
SYMBOL

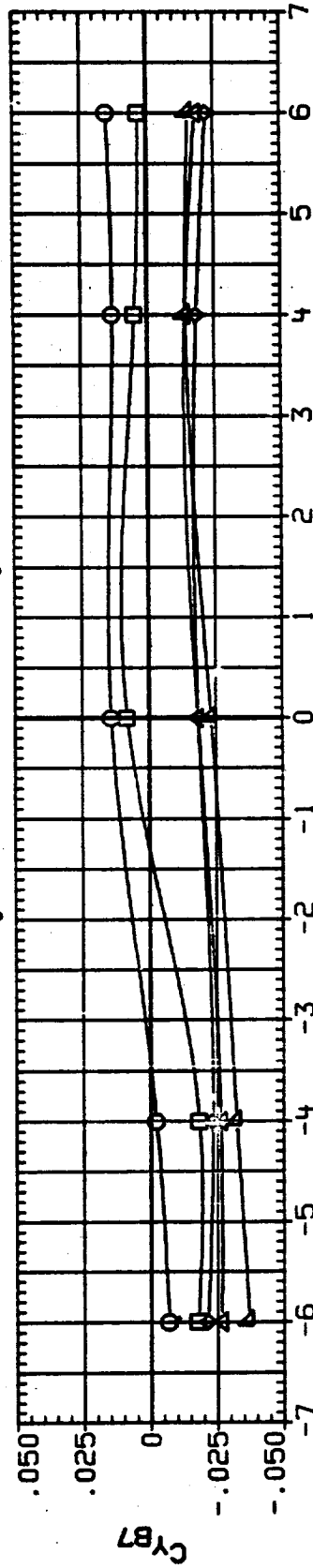
BETA
-6.000
-4.000
4.000
6.000

PARAMETRIC VALUES
MACH 1.550
Q(PSF) 600.000
18-ELV 8.000
08-ELV -5.000

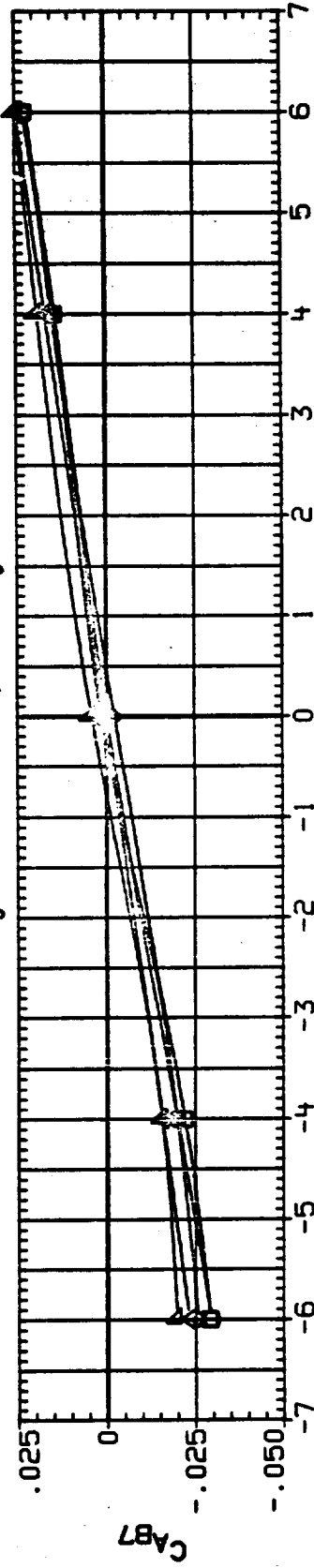
REFERENCE INFORMATION
SREF .0171 SQ. IN
LRCF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 17. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS OFF

13-47
SYMBOL

CONFIGURATION 1A1908 GH2 PRESSURE LINE RAMPS OFF

BETA
-6.000
-4.000
4.000
6.000

PARAMETRIC VALUES
MACH 2.000
Q(PSF) 600.000
IB-ELV 8.000
OB-ELV -5.000

REFERENCE INFORMATION

SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300

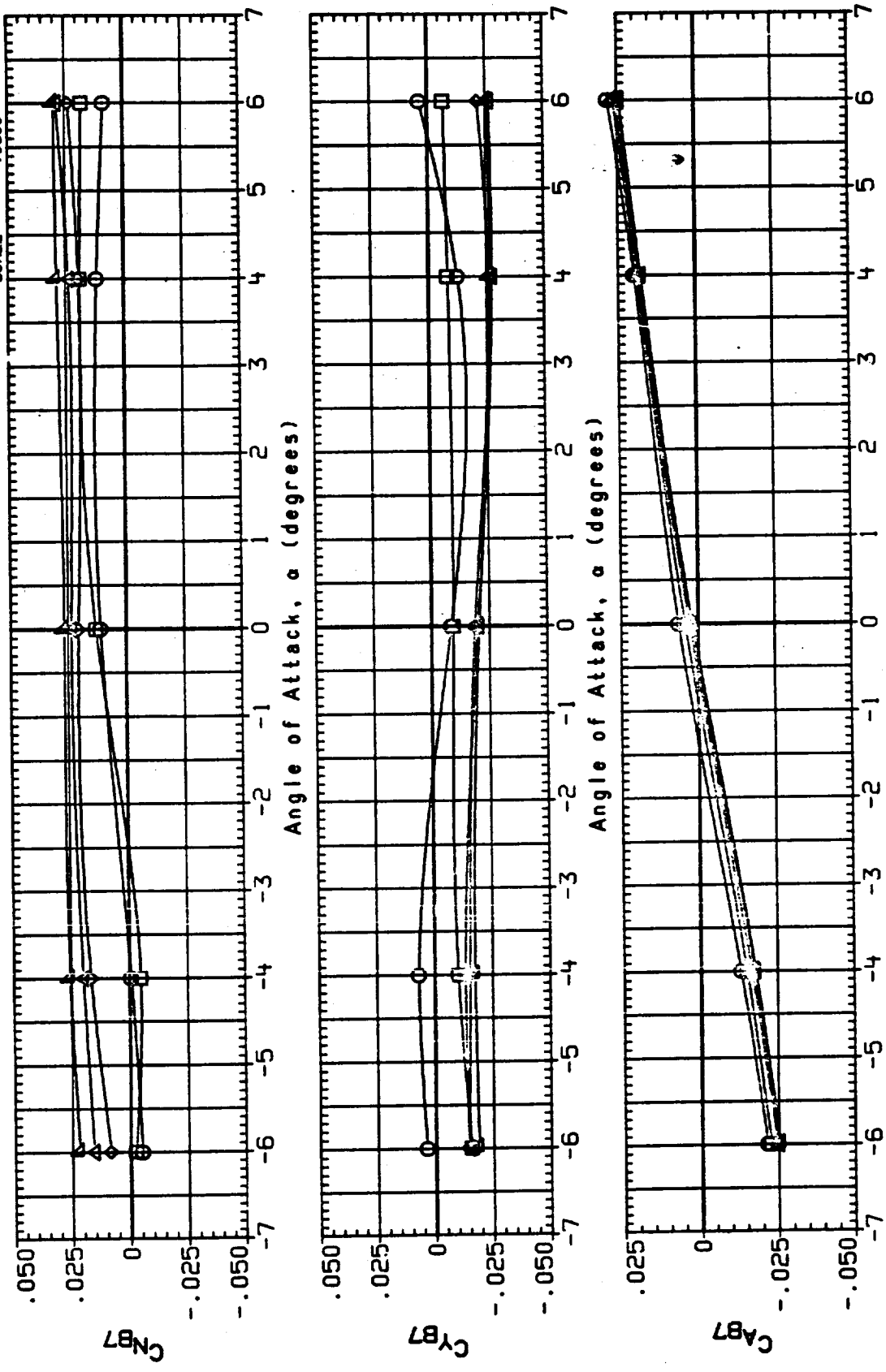


FIGURE 17. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS OFF

13V048 CONFIGURATION 1A1808.GH2 PRESSURE LINE RAMP OFF
 SYMBOL BETA PARAMETRIC VALUES
 7 6.000 MACH 2.500
 4 -4.000 Q(PSF) 600.000
 0 0.000 18-ELV 8.000
 0 4.000 08-ELV -5.000
 0 6.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

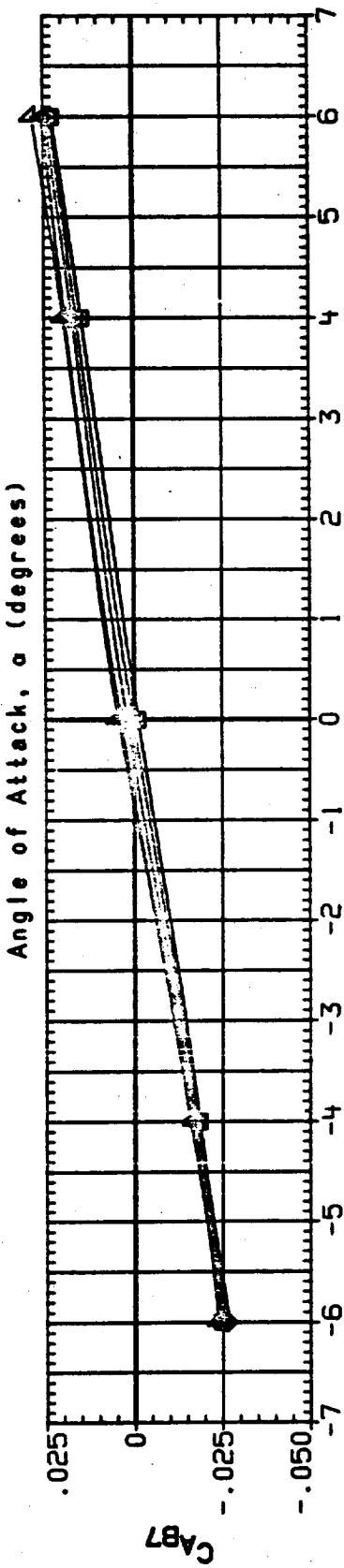
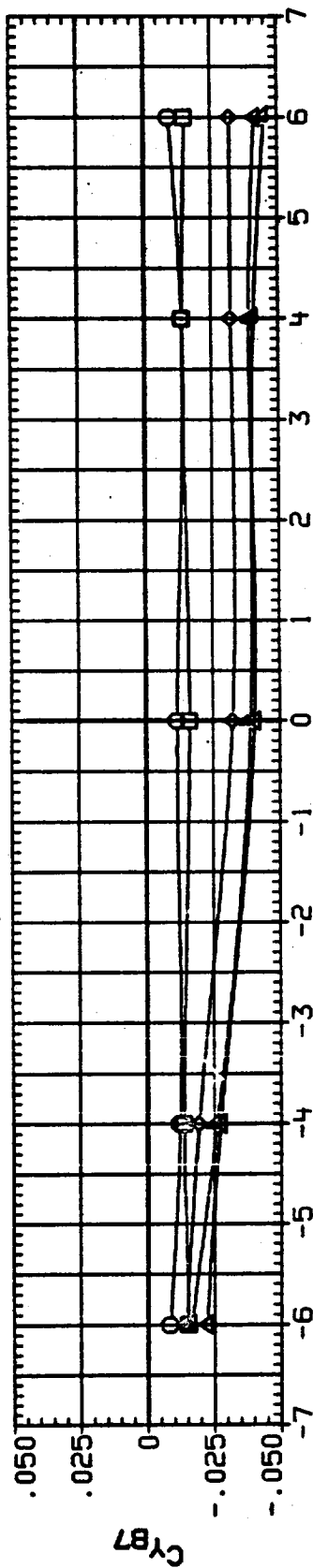
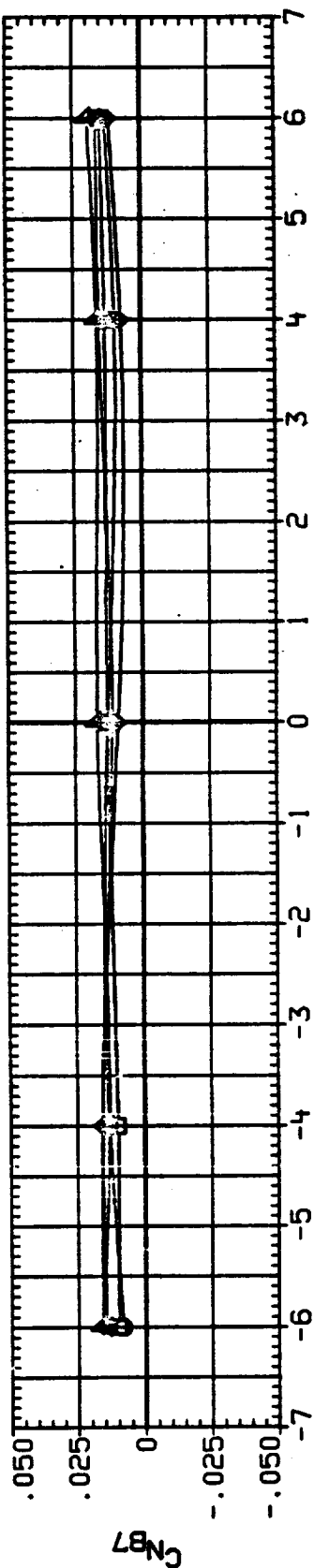


FIGURE 17. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1399.4 TO 1593.2, RAMPS OFF

130002 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

BETA PARAMETRIC VALUES
 -4.000 MACH .600
 .000 IB-ELV 10.000
 4.000 OB-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XRRP .0000 IN. XT
 YRRP .0000 IN. YT
 ZRRP .0000 IN. ZT
 SCALE .0300

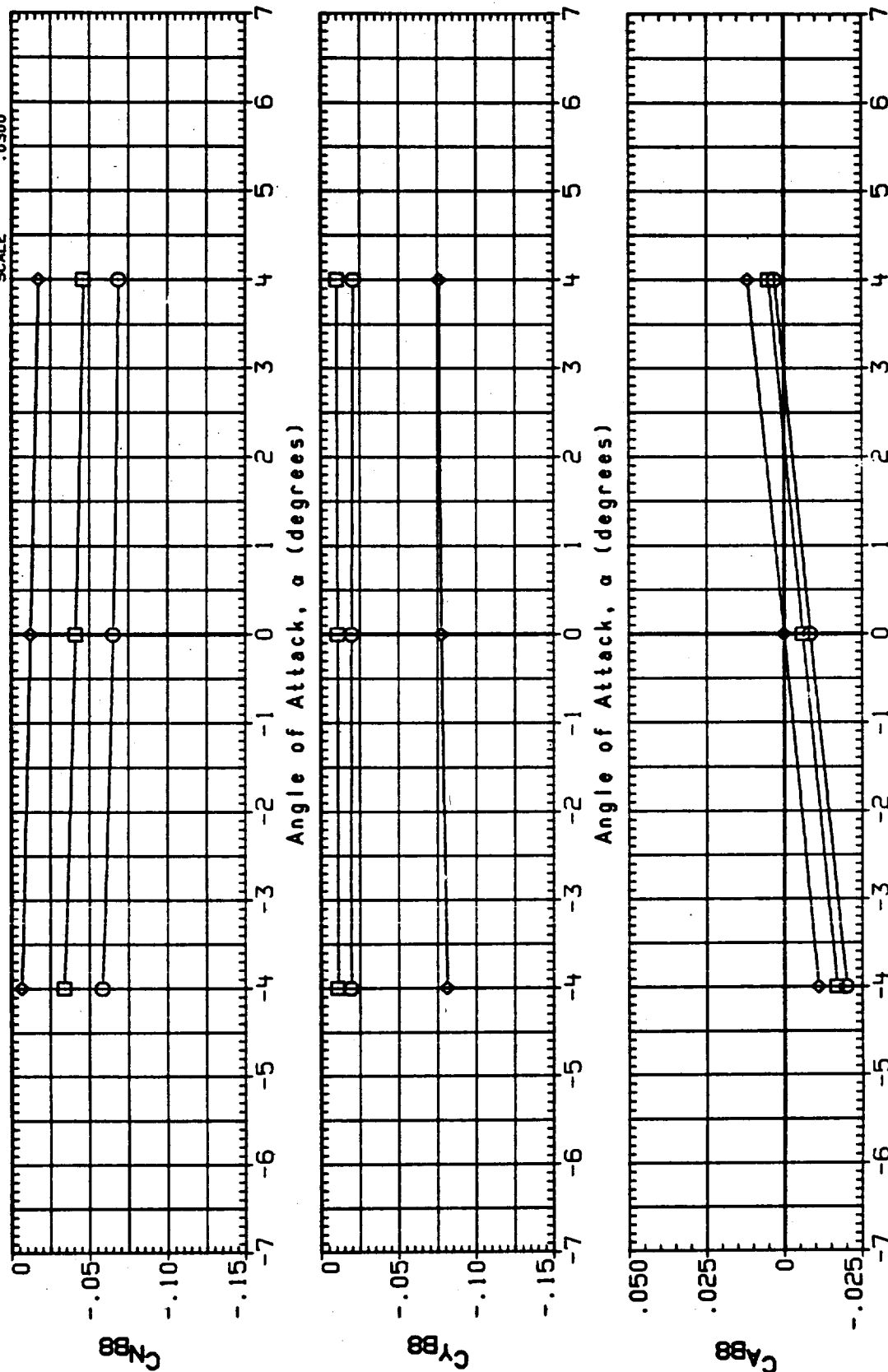


FIGURE 18. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS ON

130004 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

BETA
-4.000
4.000

PARAMETRIC VALUES
MACH 1.100
IB-ELV 10.000
OB-ELV 9.000

REFERENCE INFORMATION
SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. YT
YMRP .0000 IN. XT
ZMRP .0000 IN. ZT
SCALE .0300

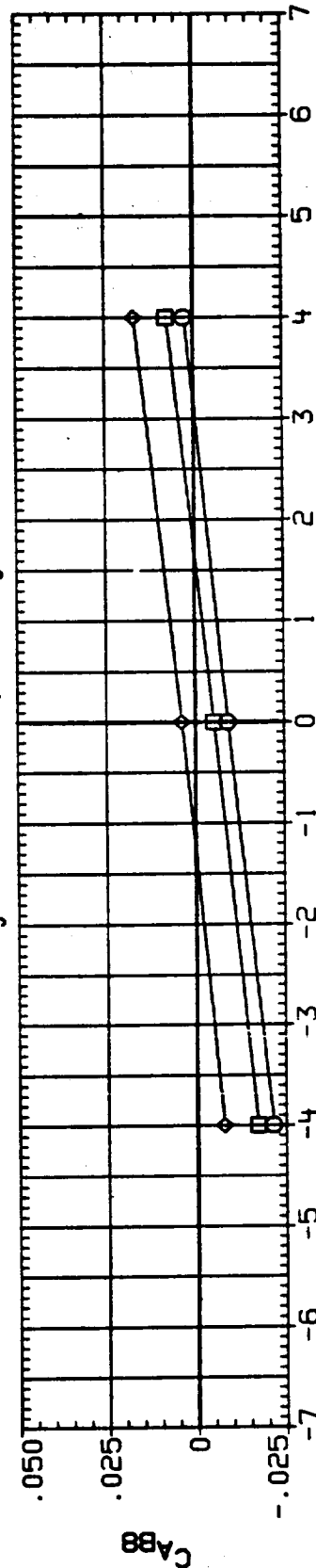
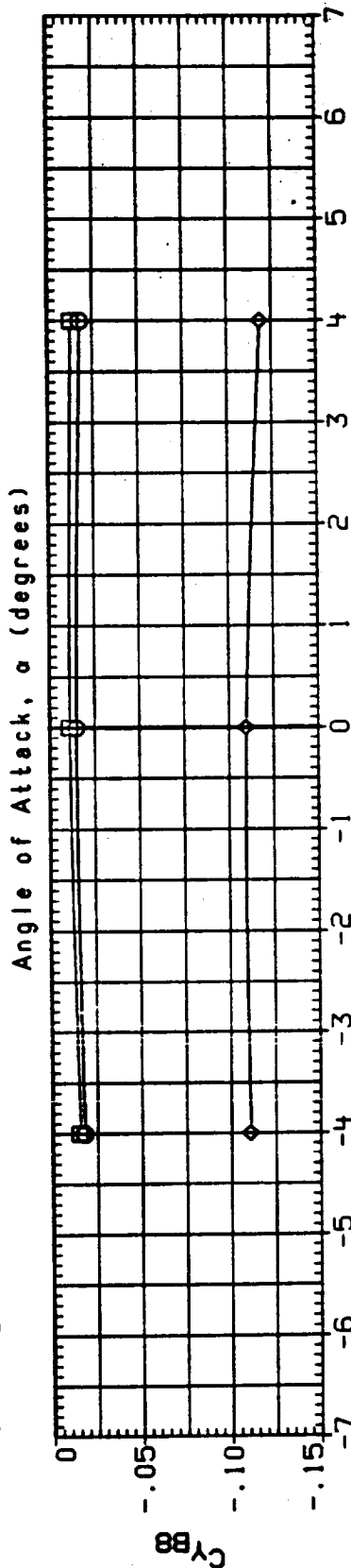
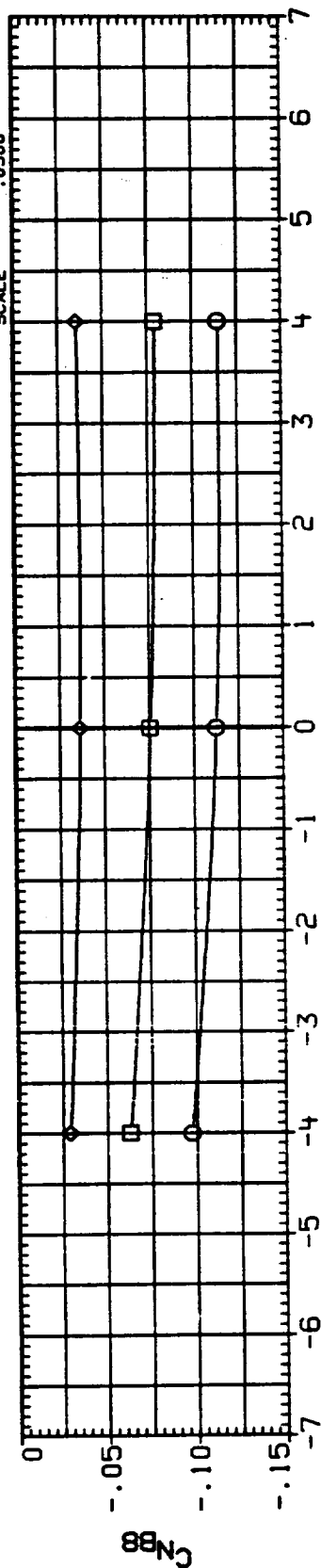


FIGURE 18. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS ON

13J005 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

BETA PARAMETRIC VALUES
 SYMBOL MACH 1B-ELV 10.000
 4.000 0B-ELV .000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XTRP .0000 IN. XT
 YTRP .0000 IN. YT
 ZTRP .0000 IN. ZT
 SCALE .0300

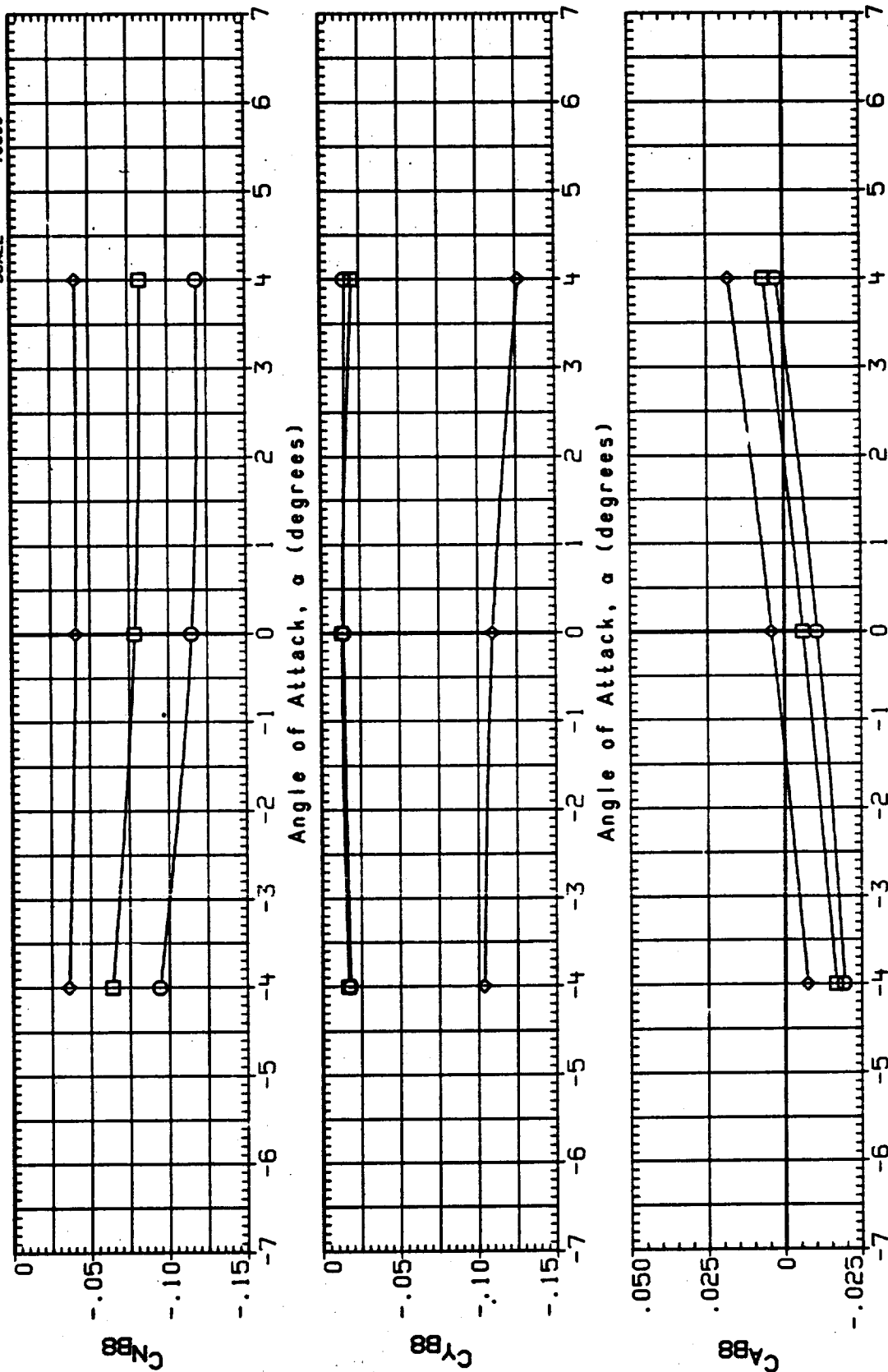


FIGURE 18. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS ON

CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS ON

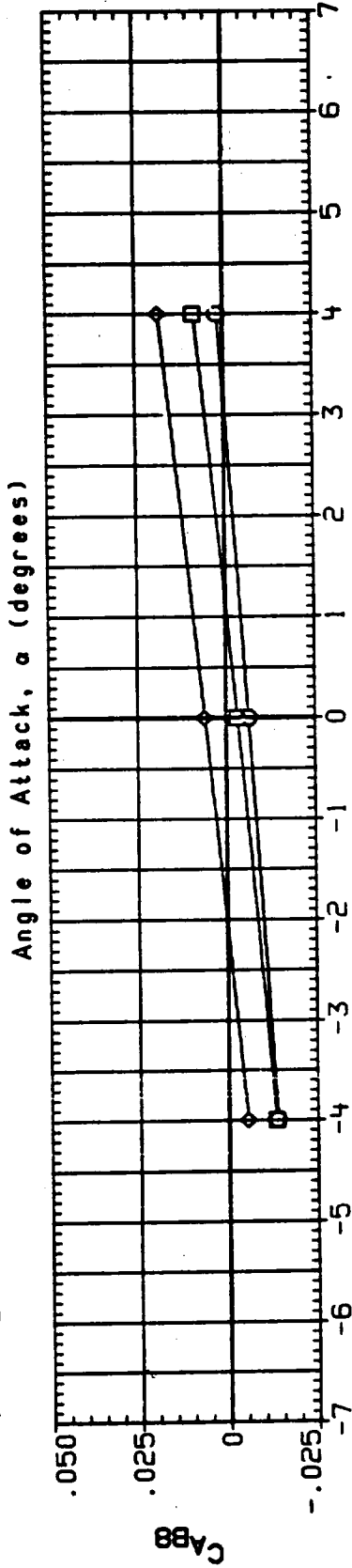
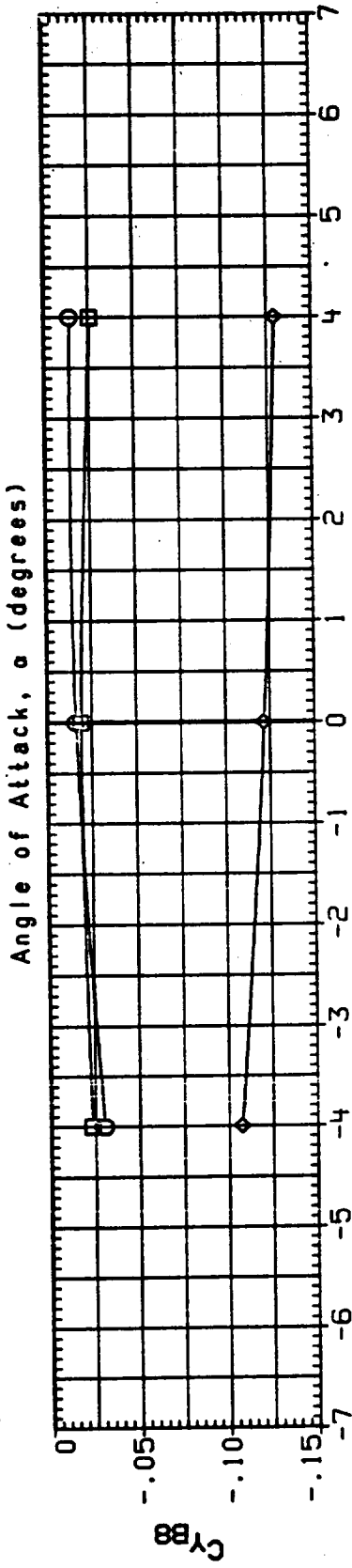
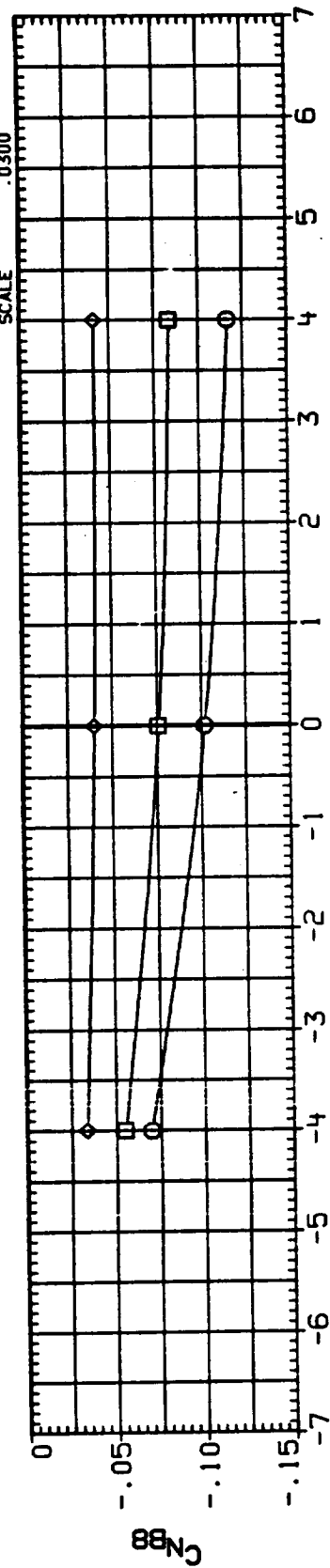
SYMBOL

BETA
-4.000
.000
4.000

PARAMETRIC VALUES
MACH 1.400
IB-ELV 10.000
OB-ELV .000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)

FIGURE 18. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS ON

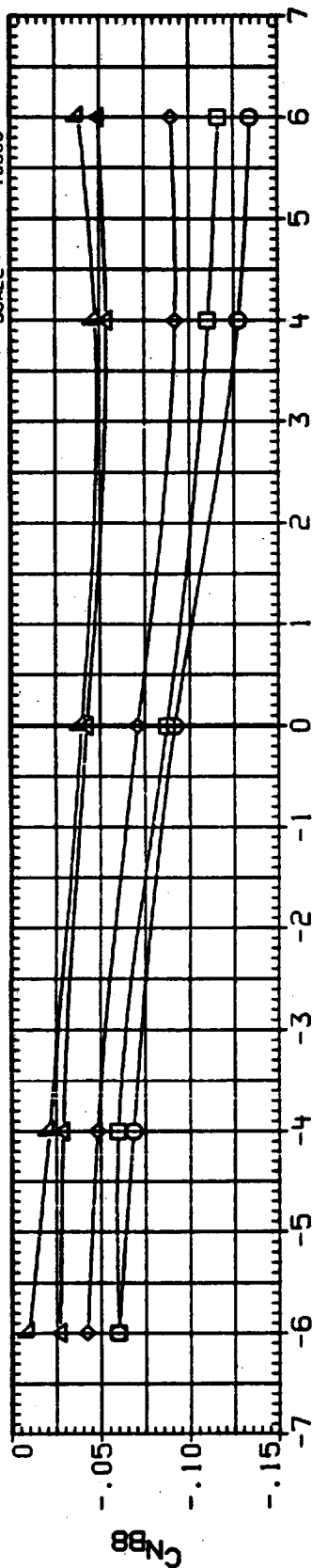
13VD43 CONFIGURATION 1A1808.042 PRESSURE LINE RAMPS ON

SYMBOL

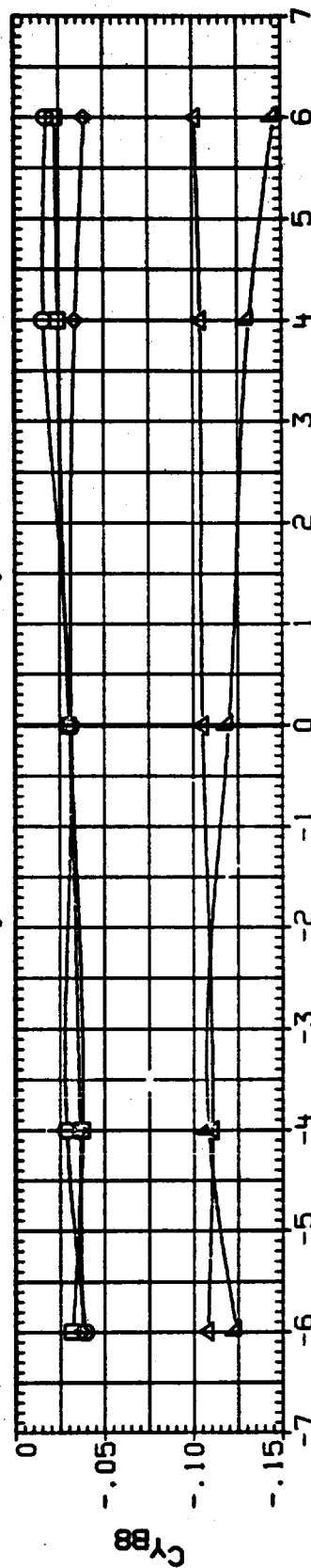
BETA
-6.000
-4.000
.000
4.000
6.000

PARAMETRIC VALUES
MACH 1.550
Q(PSF) 600.000
PB-ELV 8.000
OB-ELV -5.000

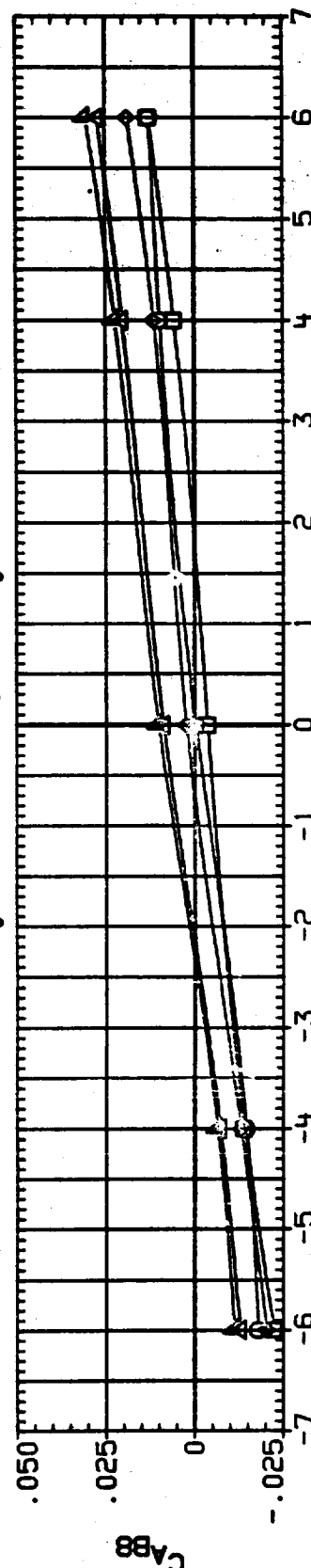
REFERENCE INFORMATION
SREF .0171 SQ. IN
LREF .0000 INCHES
BREF .0000 INCHES
XMRP .0000 IN. XT
YMRP .0000 IN. YT
ZMRP .0000 IN. ZT
SCALE .0300



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)



Angle of Attack, α (degrees)

FIGURE 18. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS ON

1.5V044
 SYMBOL
 CONFIGURATION 1A1908.GH2 PRESSURE LINE RAMP'S ON
 BETA
 -6.000
 -4.000
 .000
 4.000
 6.000
 PARAMETRIC VALUES
 MACH 2.000
 Q(PSF) 600.000
 IB-ELV 8.000
 OB-ELV -5.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN
 LREF .0000 INCHES
 BREF .0000 INCHES
 XRRP .0000 IN. XT
 YRRP .0000 IN. YT
 ZRRP .0000 IN. ZT
 SCALE .0300

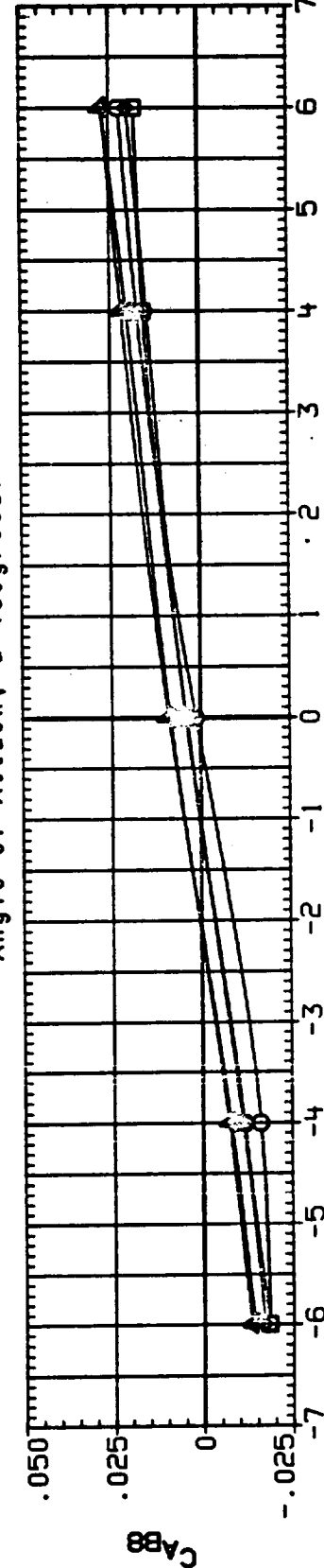
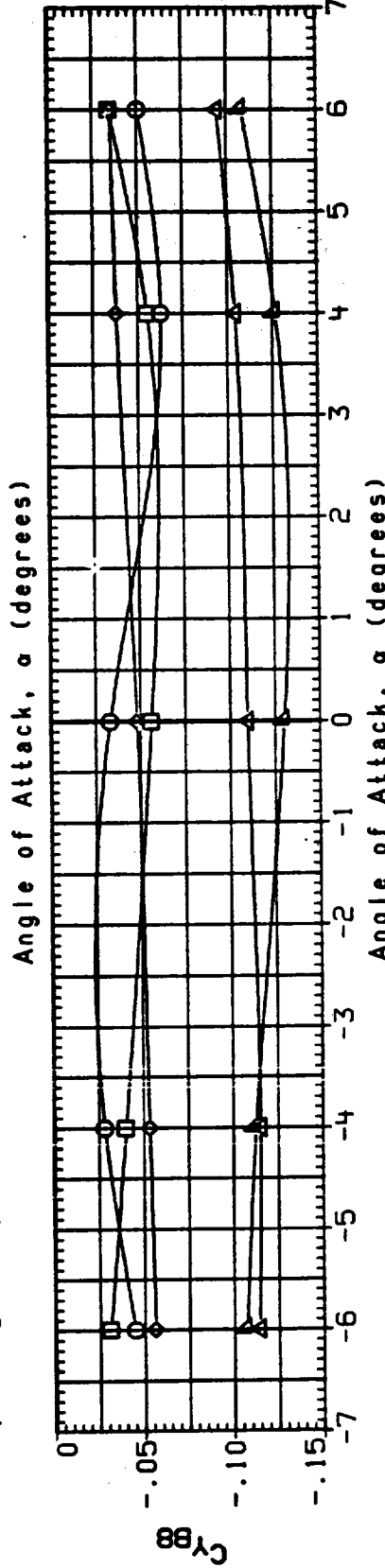
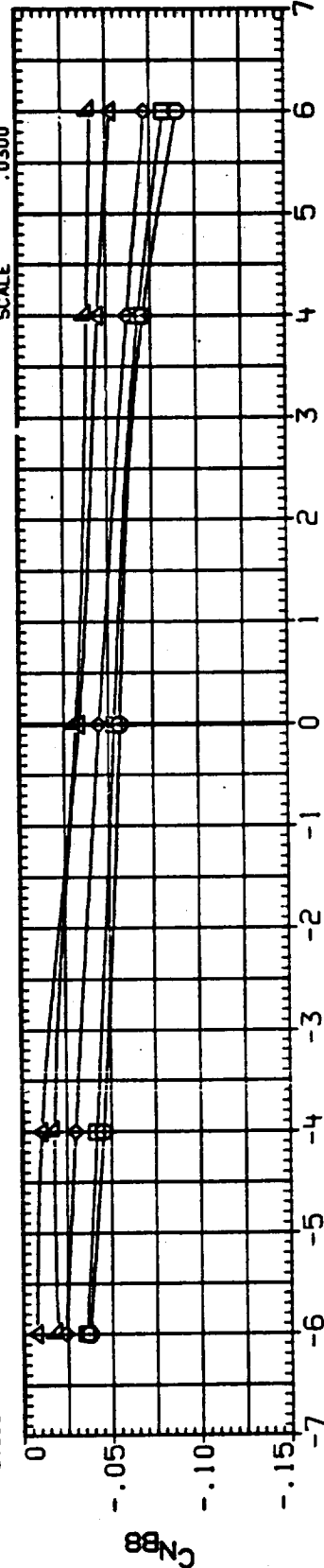


FIGURE 18. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE.
 XT = 1787.0 TO 2050.0, RAMPS ON

13VD45

SYMBOL

▽

◇

○

□

CONFIGURATION

1A1908.GH2 PRESSURE LINE

RAMPS ON

BETA

PARAMETRIC VALUES

-6.000

MACH

2.500

-4.000

Q(PSF)

600.000

.000

IB-ELV

8.000

4.000

OB-ELV

-5.000

6.000

REFERENCE INFORMATION

SREF

.0171

SO. IN

LREF

.0000

INCHES

BREF

.0000

IN. XT

XWRP

.0000

IN. YT

YWRP

.0000

IN. ZT

ZWRP

.0000

IN. ZT

SCALE

.0300

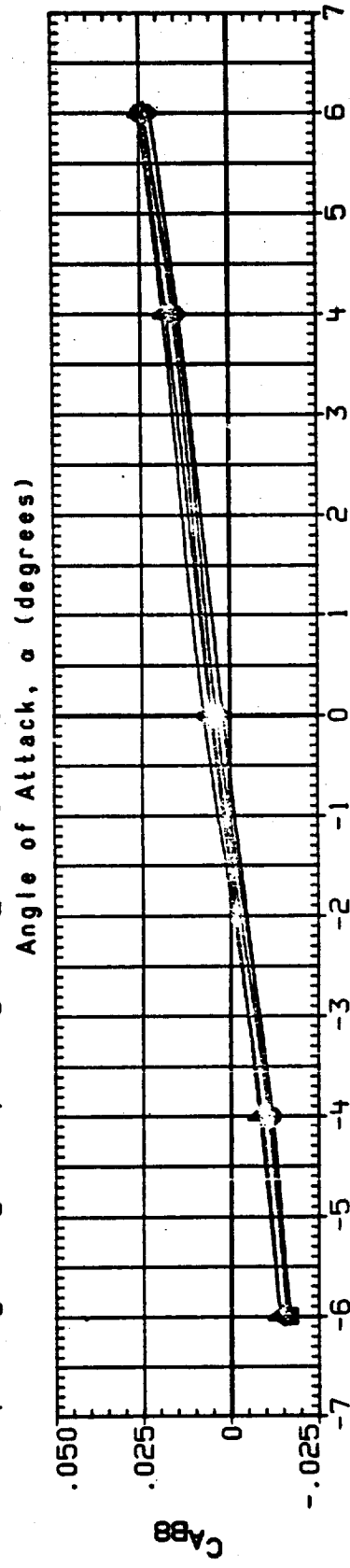
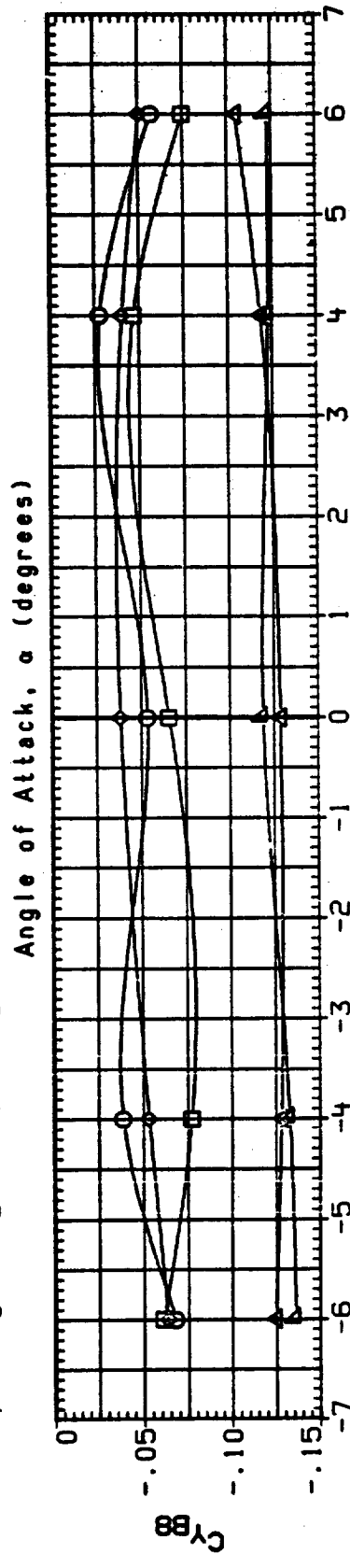
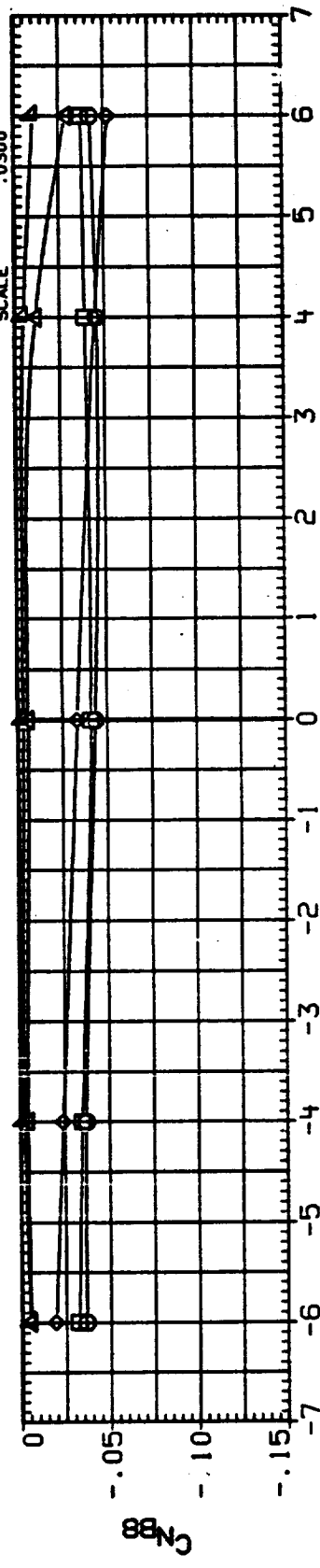


FIGURE 18. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS ON

13J007 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF
 SYMBOL BETA PARAMETRIC VALUES
 □ -4.000 MACH .600
 ○ .000 18-ELV 10.000
 ◇ 4.000 08-ELV 9.000

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

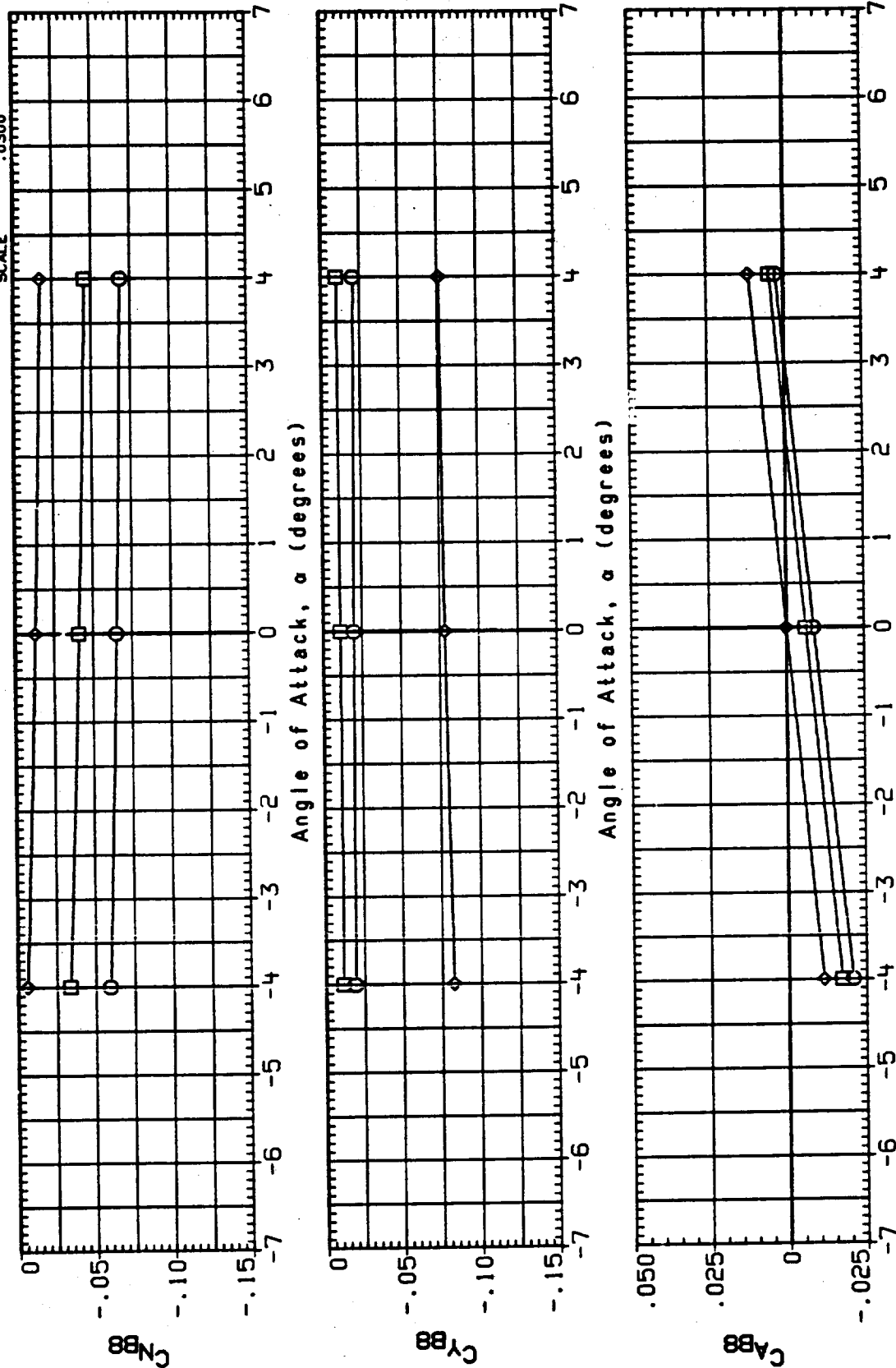


FIGURE 19. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS OFF

13J008 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

BETA PARAMETRIC VALUES
 -4.000 MACH .900
 .000 IB-ELV 10.000
 4.000 OB-ELV 9.000

REFERENCE INFORMATION

SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

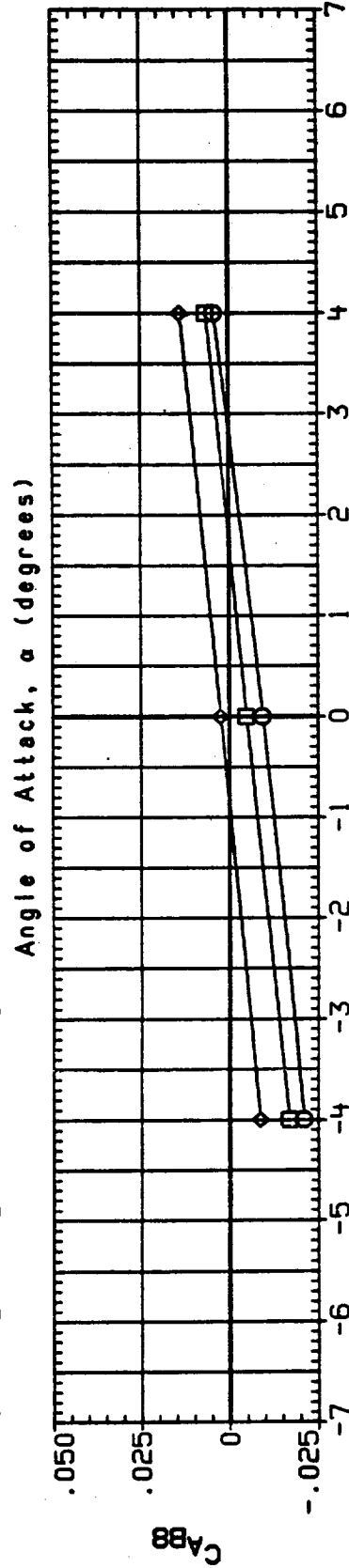
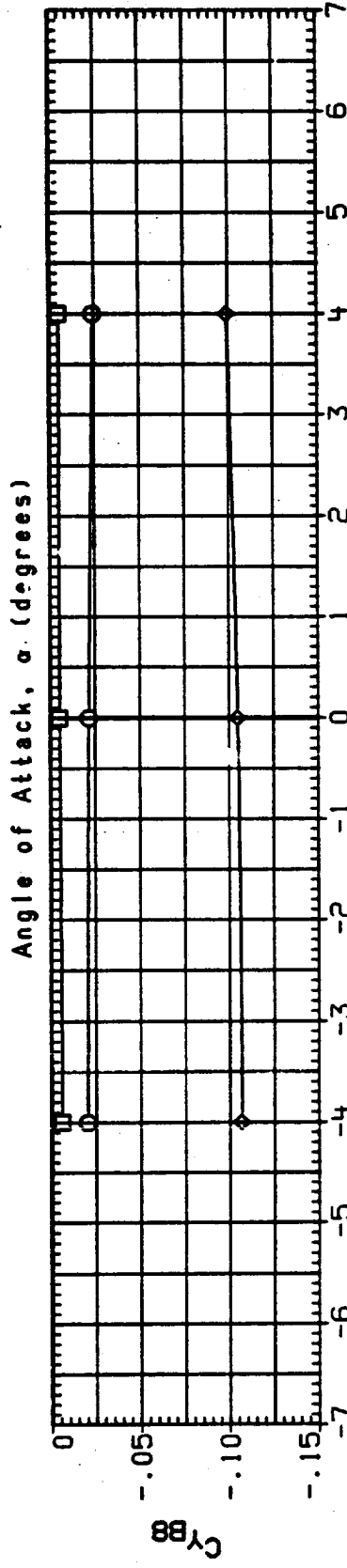
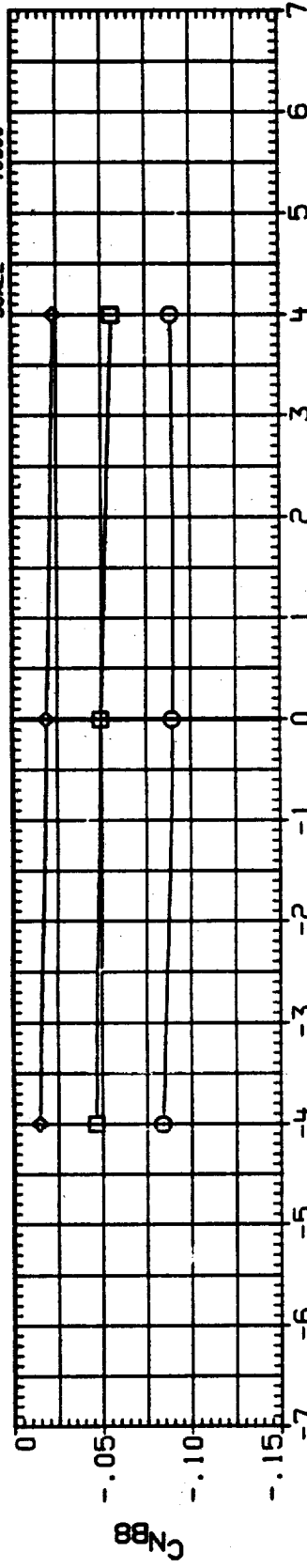


FIGURE 19. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS OFF

13J009 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF
 BETA PARAMETRIC VALUES
 -4.000 MACH 1.100
 4.000 18-ELV 10.030
 9.000 08-ELV

REFERENCE INFORMATION
 SREF .0171 SQ. IN.
 LREF .0000 INCHES
 BREF .0000 INCHES
 XMRP .0000 IN. XT
 YMRP .0000 IN. YT
 ZMRP .0000 IN. ZT
 SCALE .0300

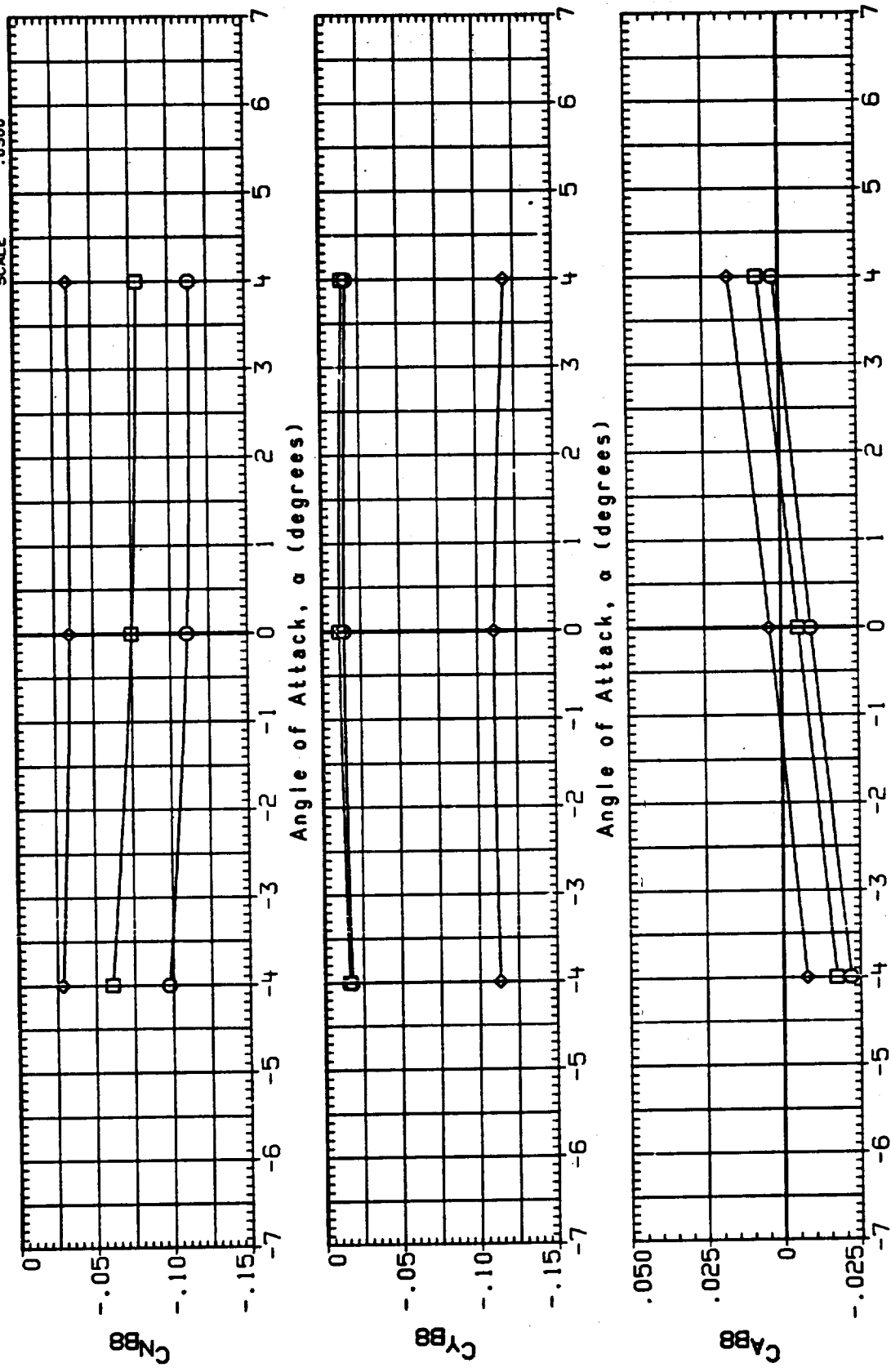


FIGURE 19. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE.
 $X_T = 1787.0$ TO 2050.0 , RAMPS OFF

13010 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

BETA	PARAMETRIC VALUES
-4.000	MACH 1.250
.000	18-ELV 10.000
4.000	08-ELV .000

REFERENCE INFORMATION	
SREF	.0171 SQ. IN.
LREF	.0000 INCHES
BREF	.0000 INCHES
XPRP	.0000 IN. XT
YPRP	.0000 IN. YT
ZPRP	.0000 IN. ZT
SCALE	.0300

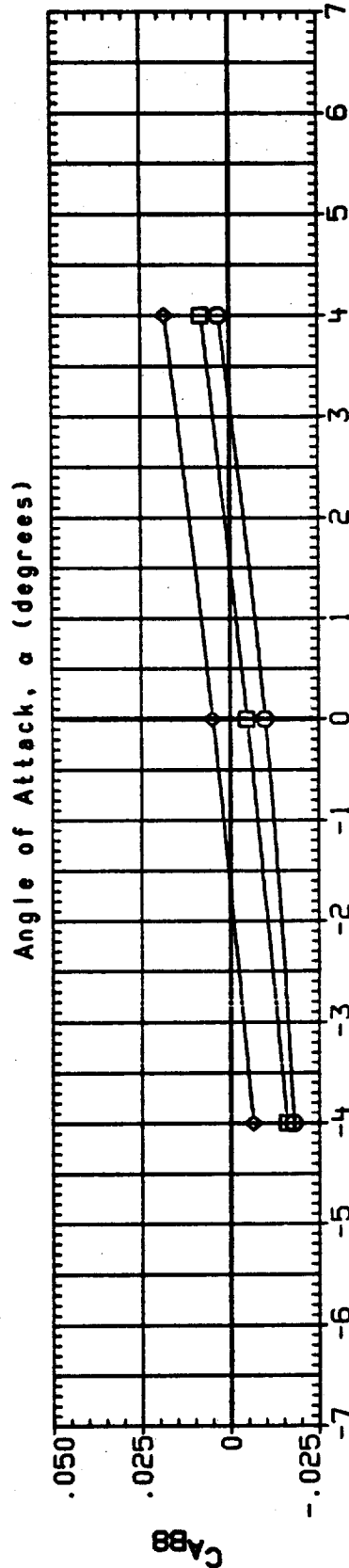
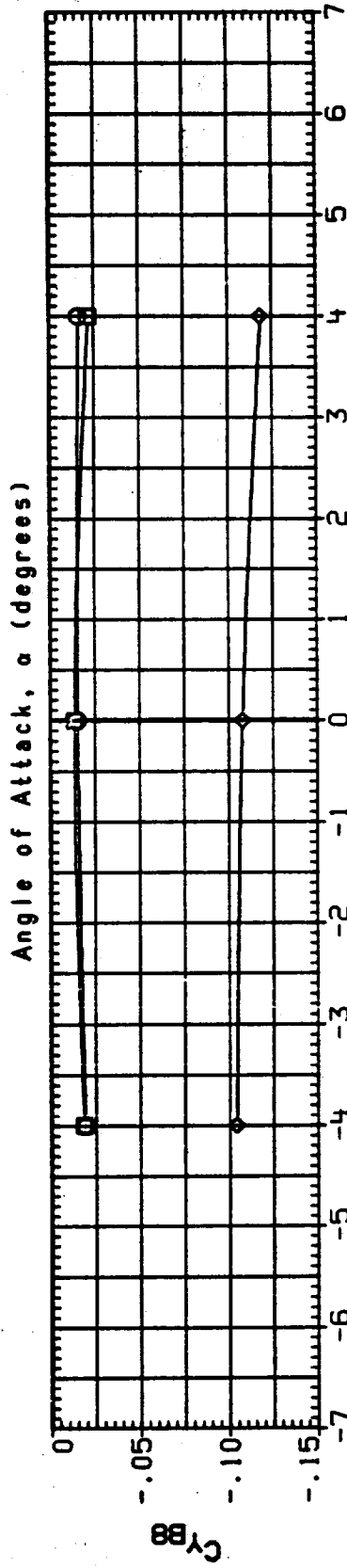
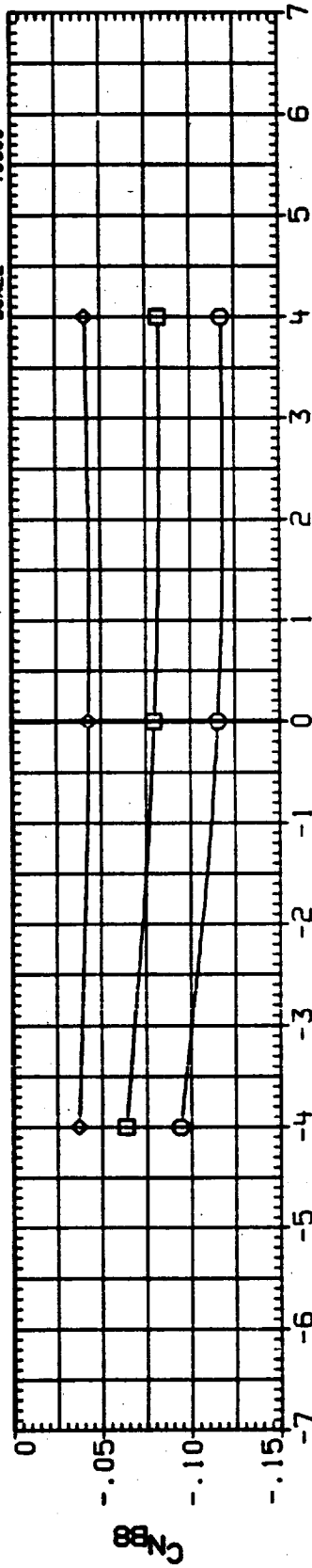


FIGURE 19. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS OFF

130011 CONFIGURATION 1A190A, GH2 PRESSURE LINE, RAMPS OFF

SYMBOL \diamond \square \circ
 BETA -4.000 4.000
 PARAMETRIC VALUES
 MACH 1.400
 IB-ELV 10.000
 OB-ELV $.000$

REFERENCE INFORMATION
 SREF $.0171$ SQ. IN.
 LREF $.0000$ INCHES
 BREF $.0000$ INCHES
 XMRP $.0000$ IN. XT
 YMRP $.0000$ IN. YT
 ZMRP $.0000$ IN. ZT
 SCALE $.0300$

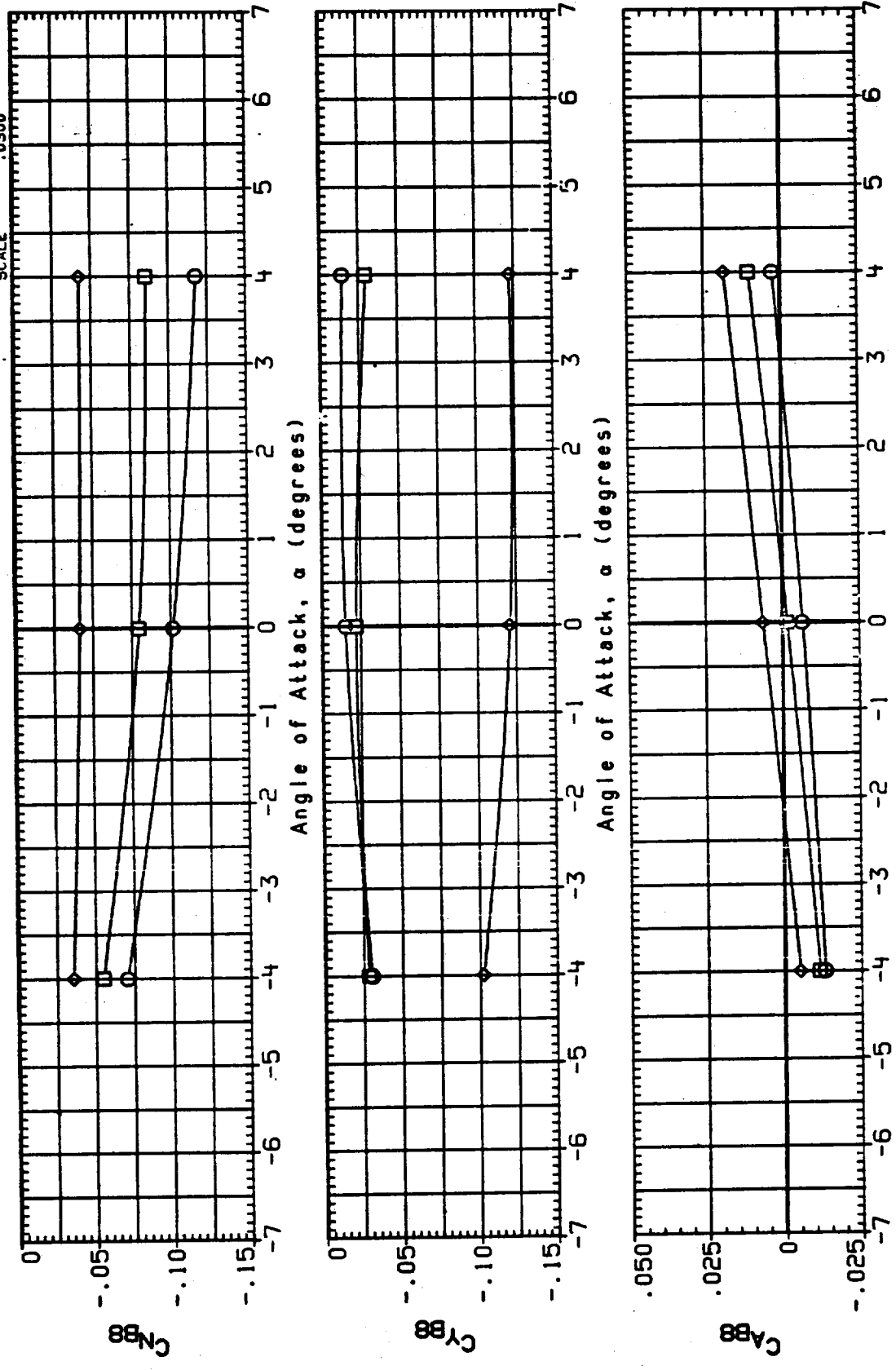


FIGURE 19. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS OFF

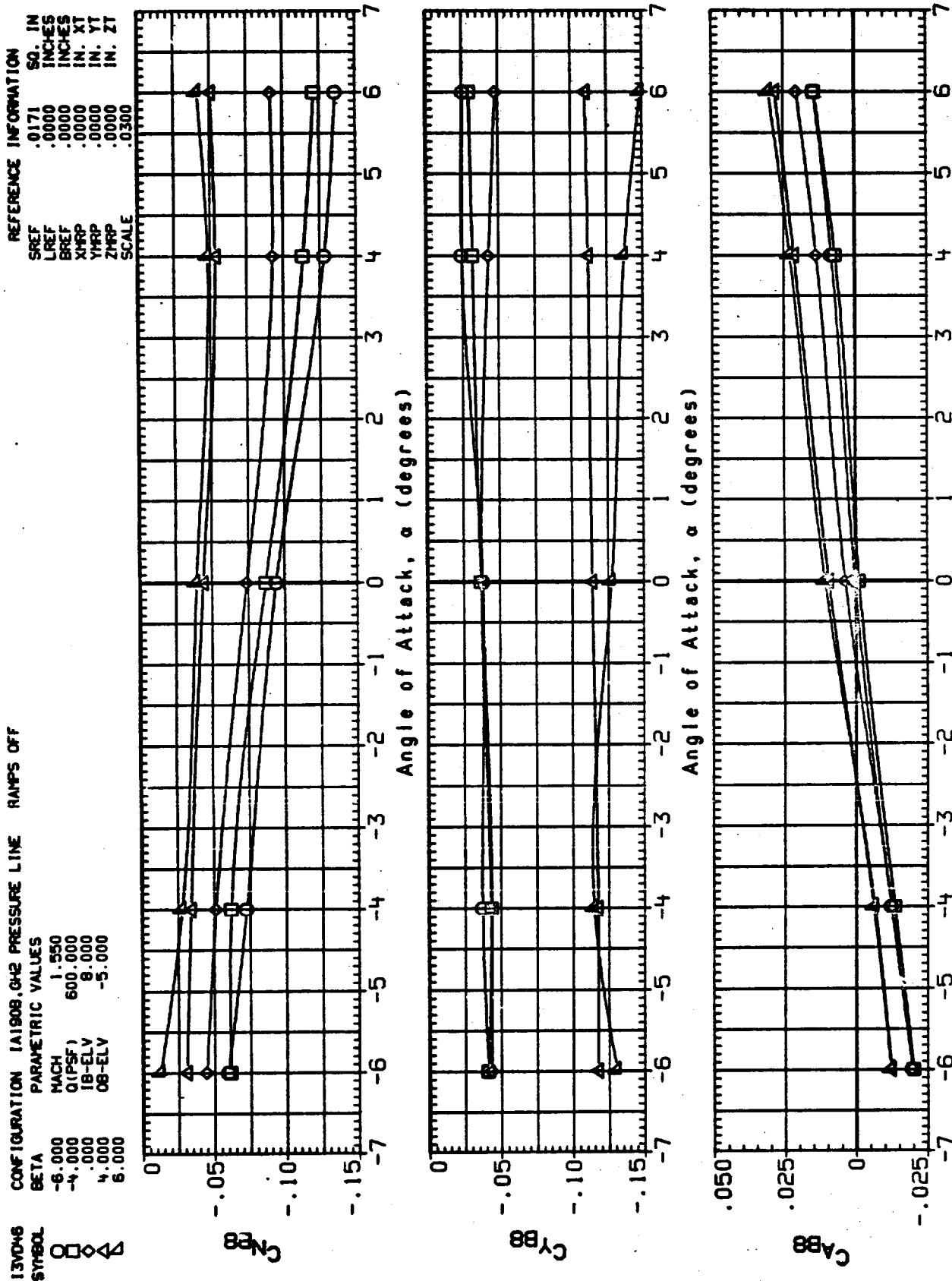


FIGURE 19. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS OFF

13YD47

SYMBOL

□

◇

△

○

CONFIGURATION

1A180B, GH2 PRESSURE LINE

RAMPS OFF

BETA

-6.000

-4.000

.000

4.000

6.000

PARAMETRIC VALUES

MACH

2.000

Q(PSF)

600.000

18-ELV

8.000

08-ELV

-5.000

REFERENCE INFORMATION

SREF

.0171

SO. IN

LREF

.0000

INCHES

BREF

.0000

INCHES

XMRP

.0000

IN. XT

YMRP

.0000

IN. YT

ZMRP

.0000

IN. ZT

SCALE

.0300

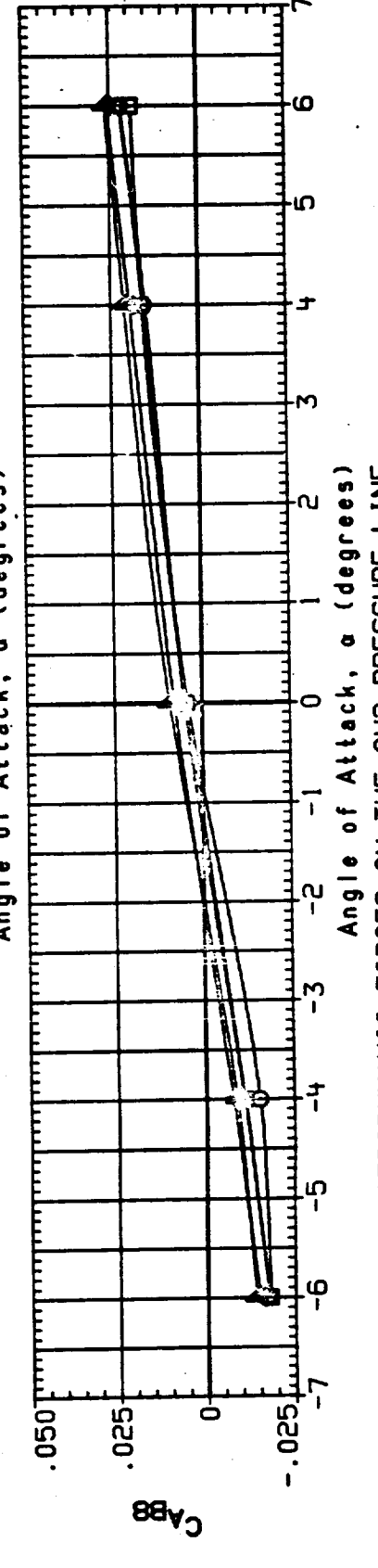
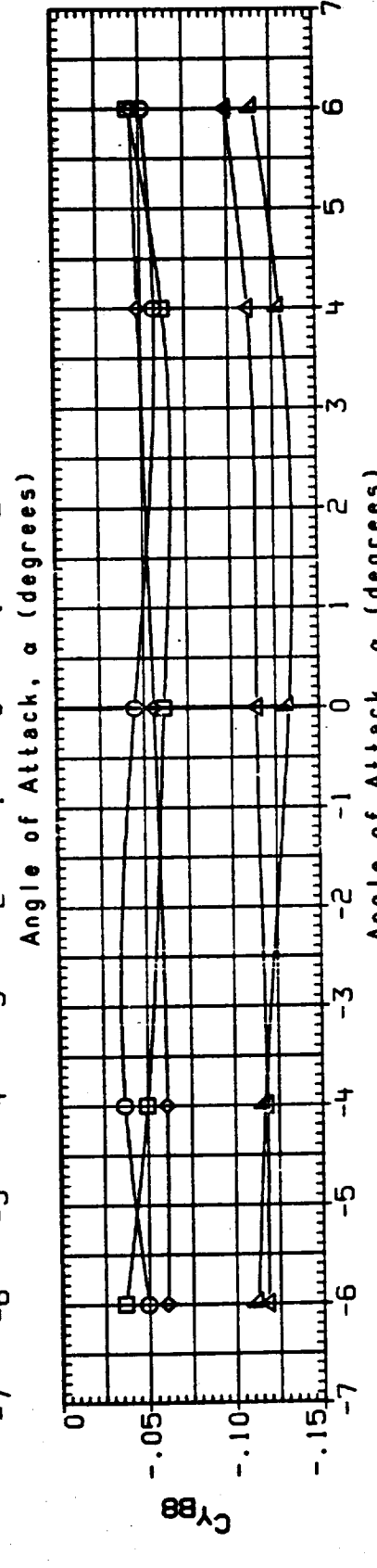
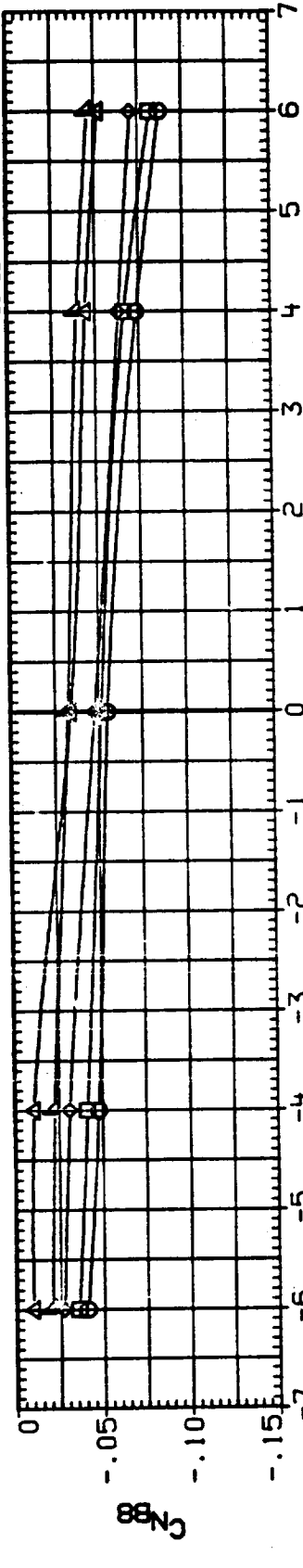


FIGURE 19. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS OFF

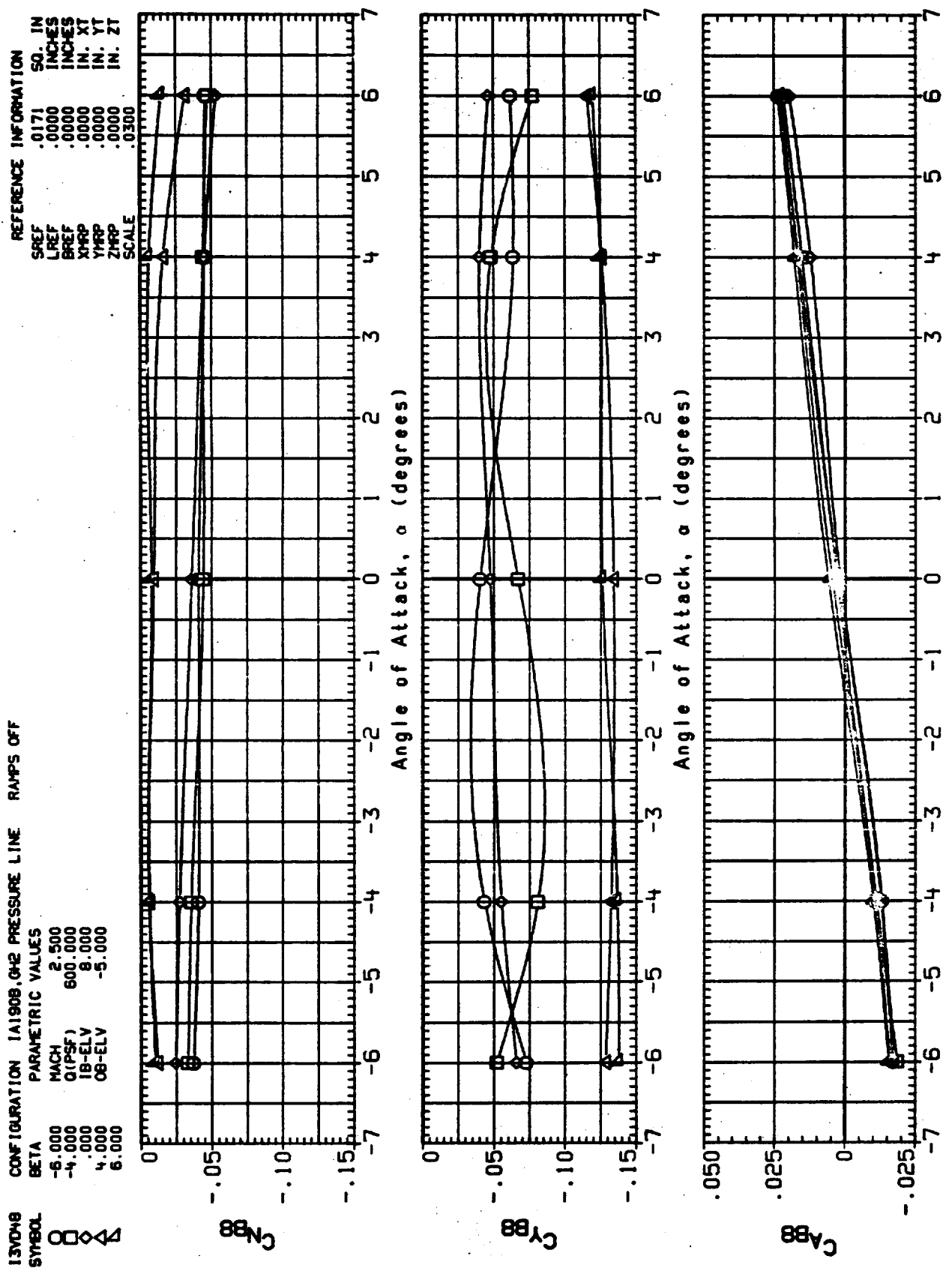


FIGURE 19. AERODYNAMIC FORCES ON THE GH2 PRESSURE LINE, XT = 1787.0 TO 2050.0, RAMPS OFF

DATA SE. MBOL

DATA SE.	MBOL	CONFIGURATION	THETAP	MACH	1B-ELV	OB-ELV
E30152	○	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.600	10.000	.000
E30252	□	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.600	10.000	.000
E30352	◇	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.600	10.000	.000

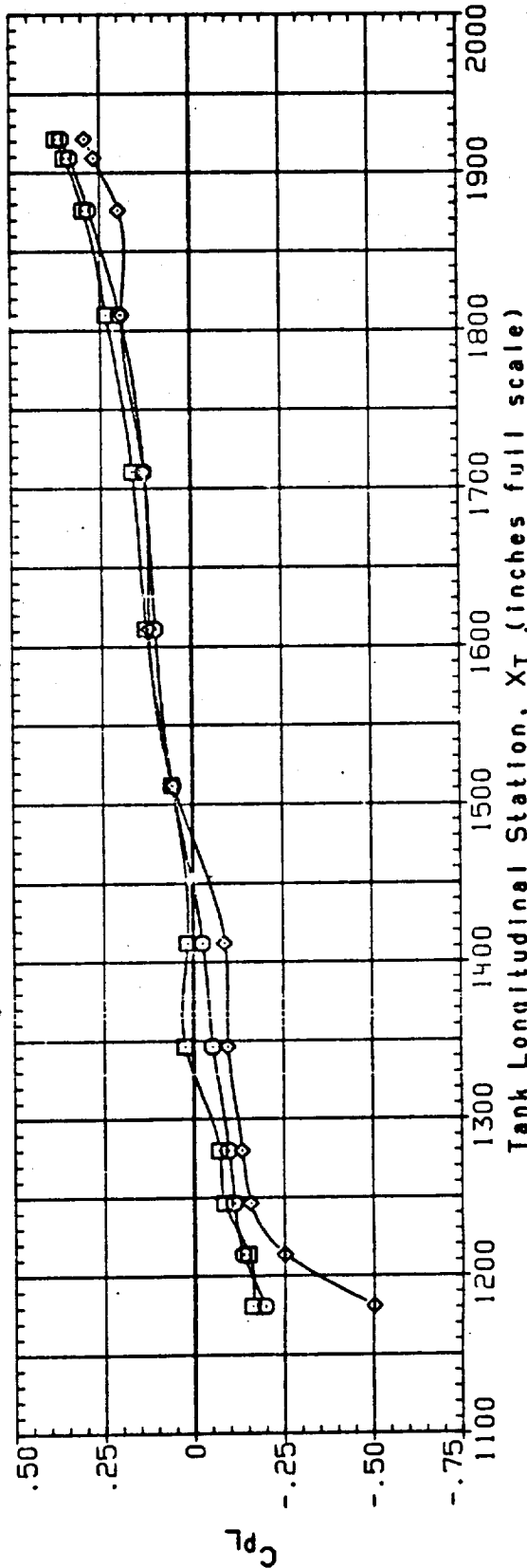
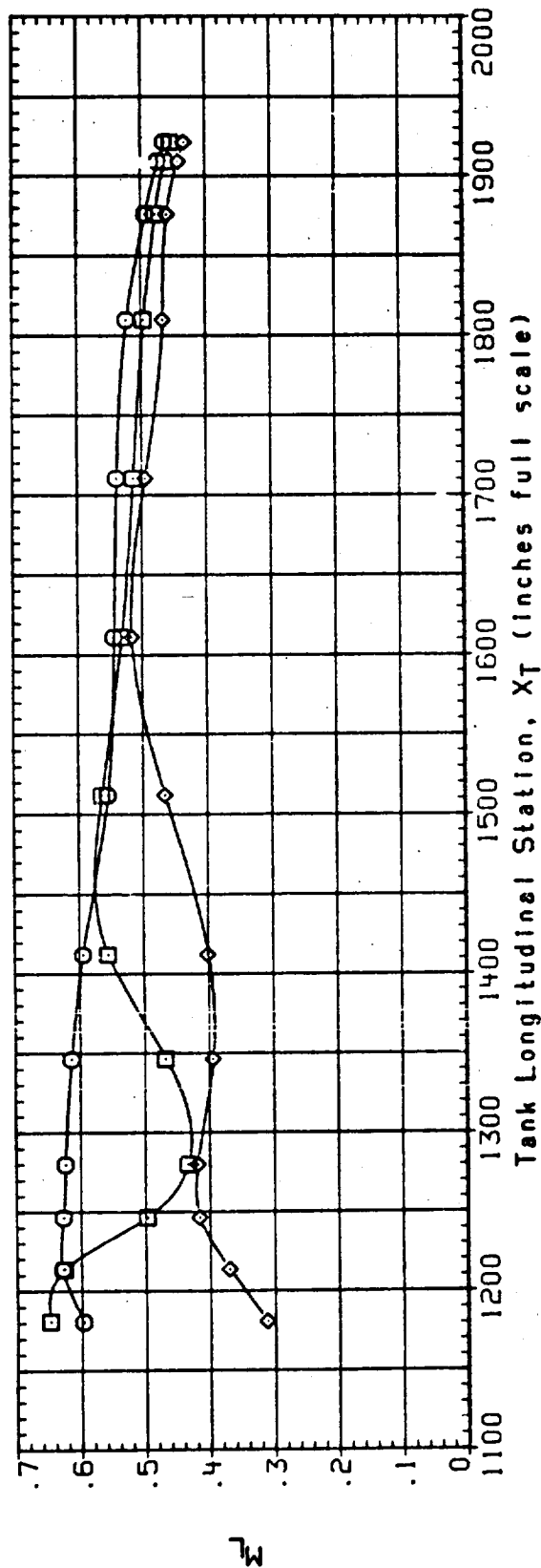


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL		CONFIGURATION		THETAP	ALPHA	MACH	18-ELV	08-ELV
E3U152	○	1A190A, OTS, LEFT TRAVERSING PROBE	(PROBE # 31)	195.000	-4.000	.600	10.000	.000
E3U252	□	1A190A, OTS, MID TRAVERSING PROBE	(PROBE # 46)	180.000	-4.000	.600	10.000	.000
E3U352	◇	1A190A, OTS, RIGHT TRAVERSING PROBE	(PROBE # 43)	165.000	-4.000	.600	10.000	.000

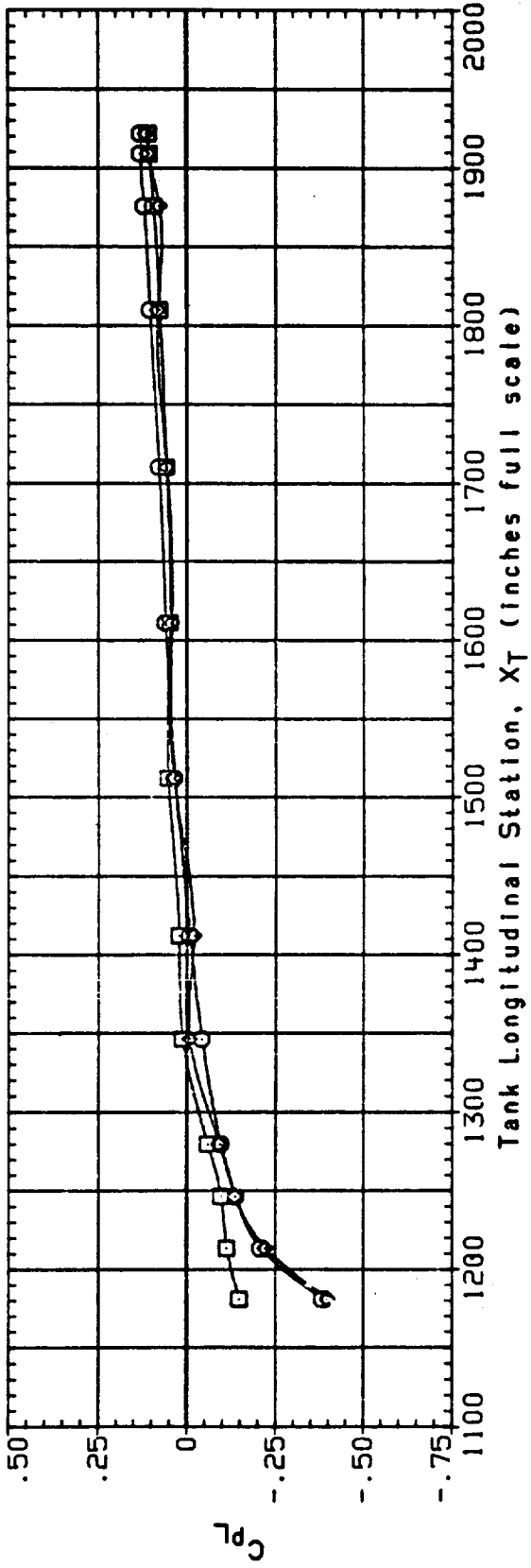
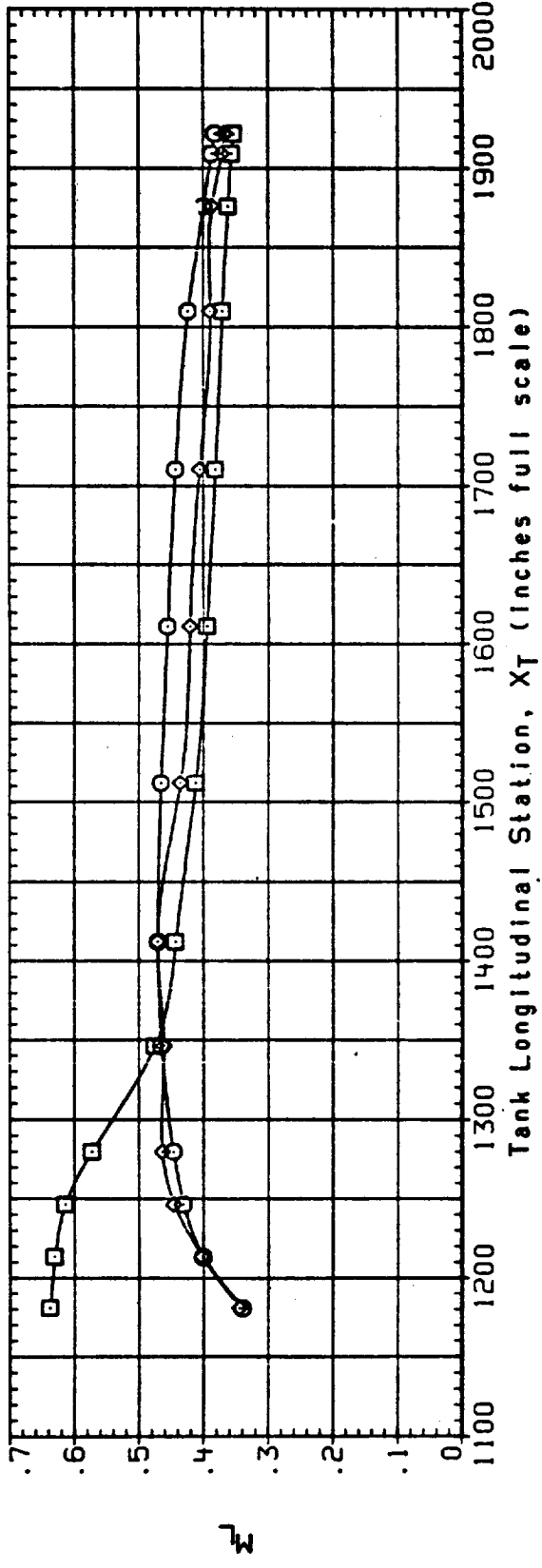


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B)BETA = .00

DATA SET SYMBOL	CONFIGURATION				THETAP	ALPHA	MACH	1B-ELV	0B-ELV
	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)						
E3U152					195.000	-4.000	.600	10.000	.000
E3U252					180.000	-4.000	.600	10.000	.000
E3U352					165.000	-4.000	.600	10.000	.000

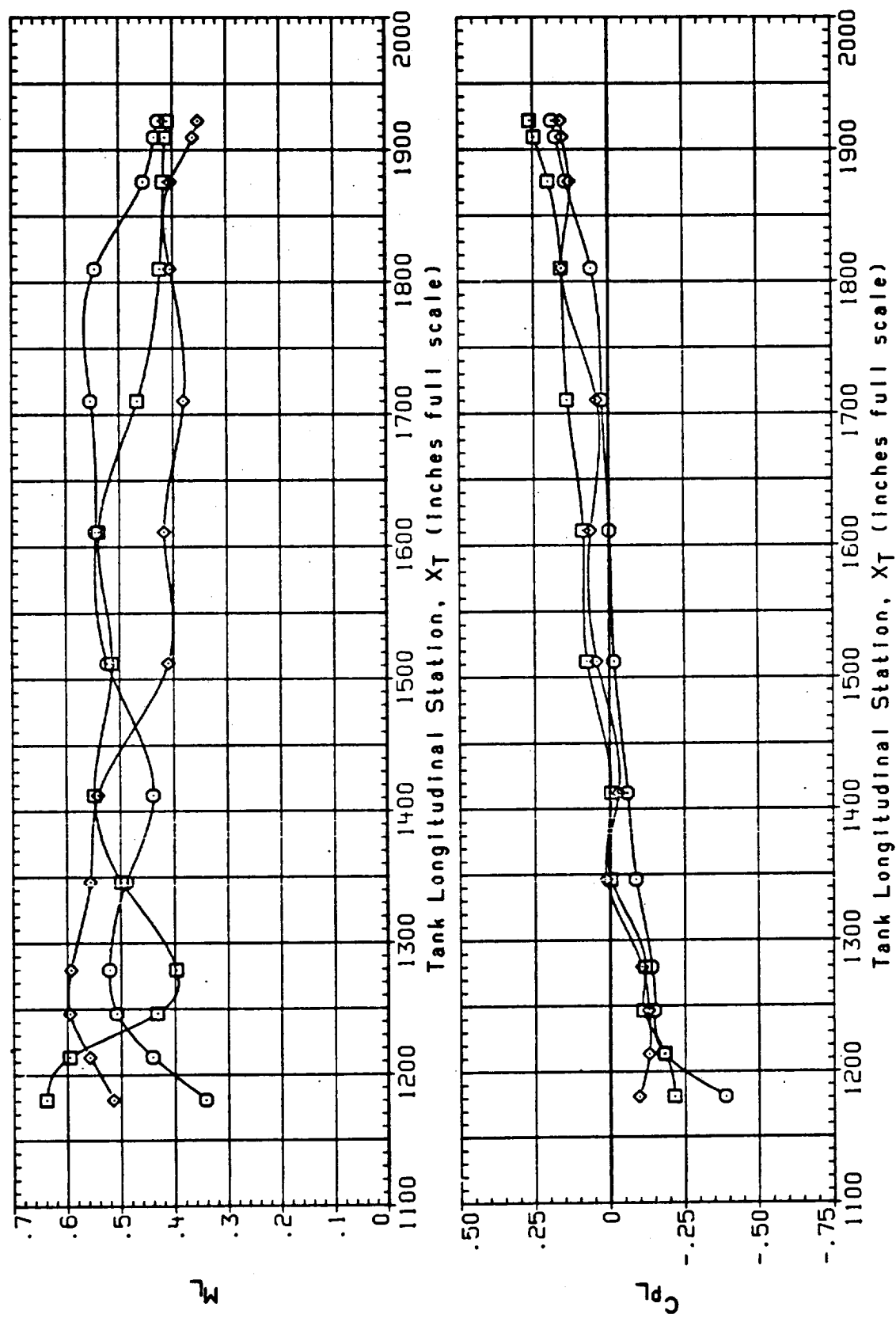


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C)BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	1B-ELV	0B-ELV
E3U153	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.600	10.000	.000
E3U253	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.600	10.000	.000
E3U353	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.600	10.000	.000

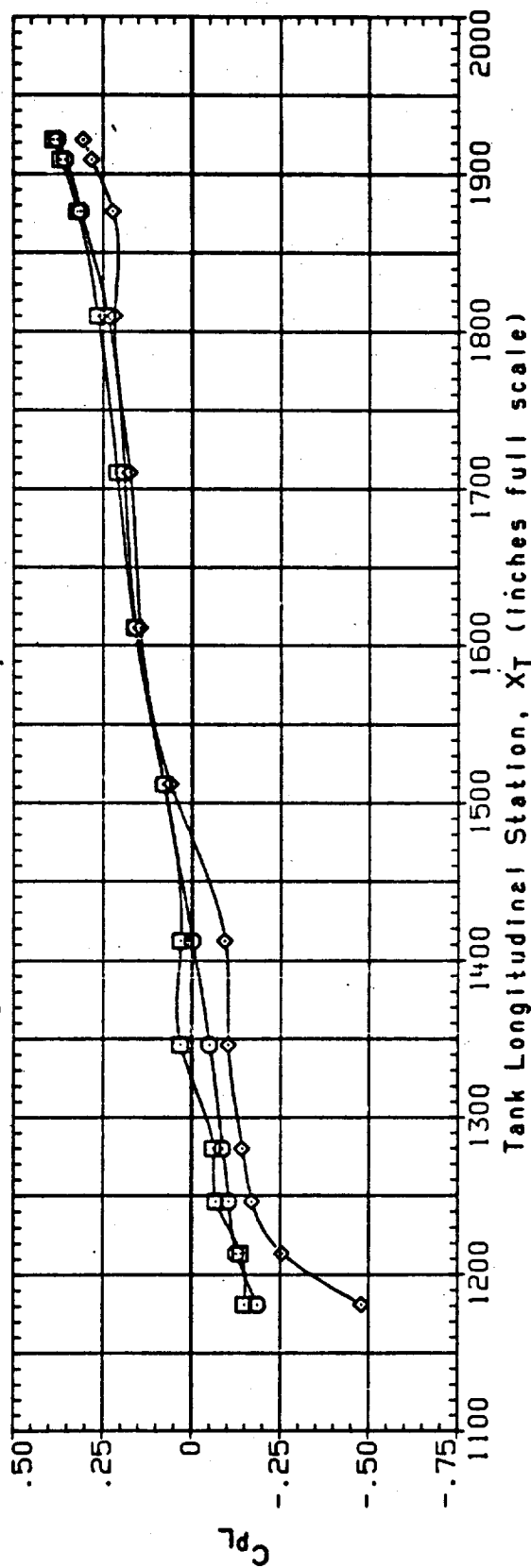
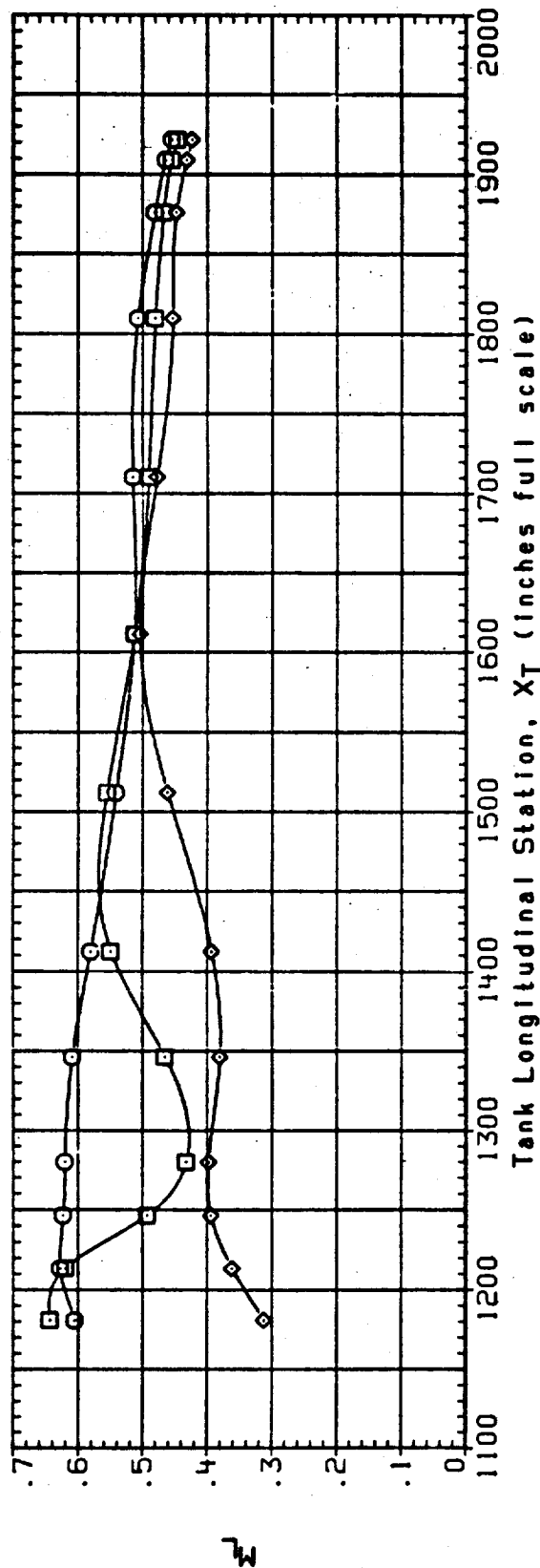


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET	SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	18-ELV	08-ELV
E3U153	○	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.600	10.000	.000
E3U253	□	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.600	10.000	.000
E3U353	◇	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.600	10.000	.000

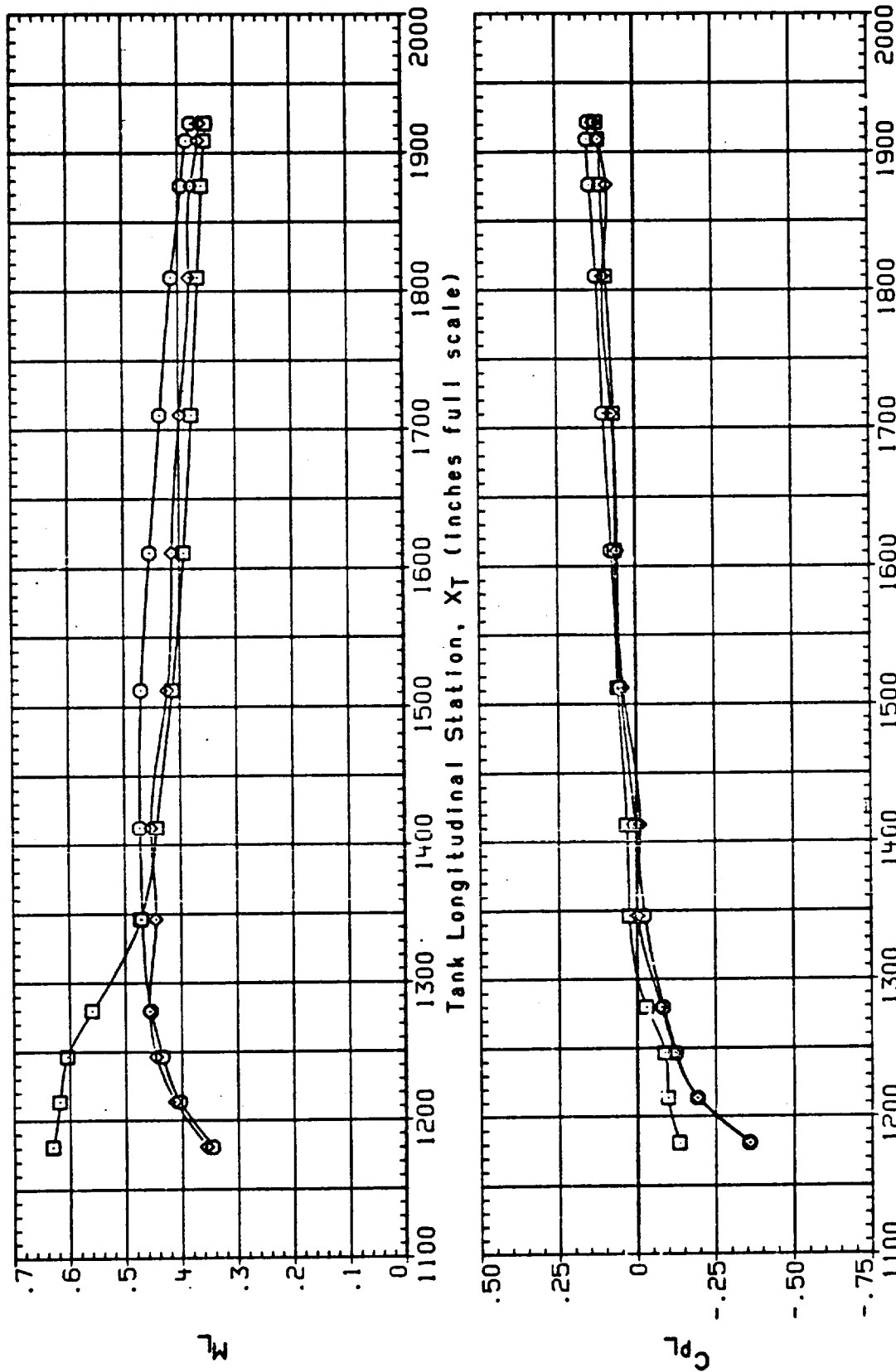


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	1B-ELV	OB-ELV
E3U153	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.600	10.000	.000
E3U253	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.600	10.000	.000
E3U353	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.600	10.000	.000

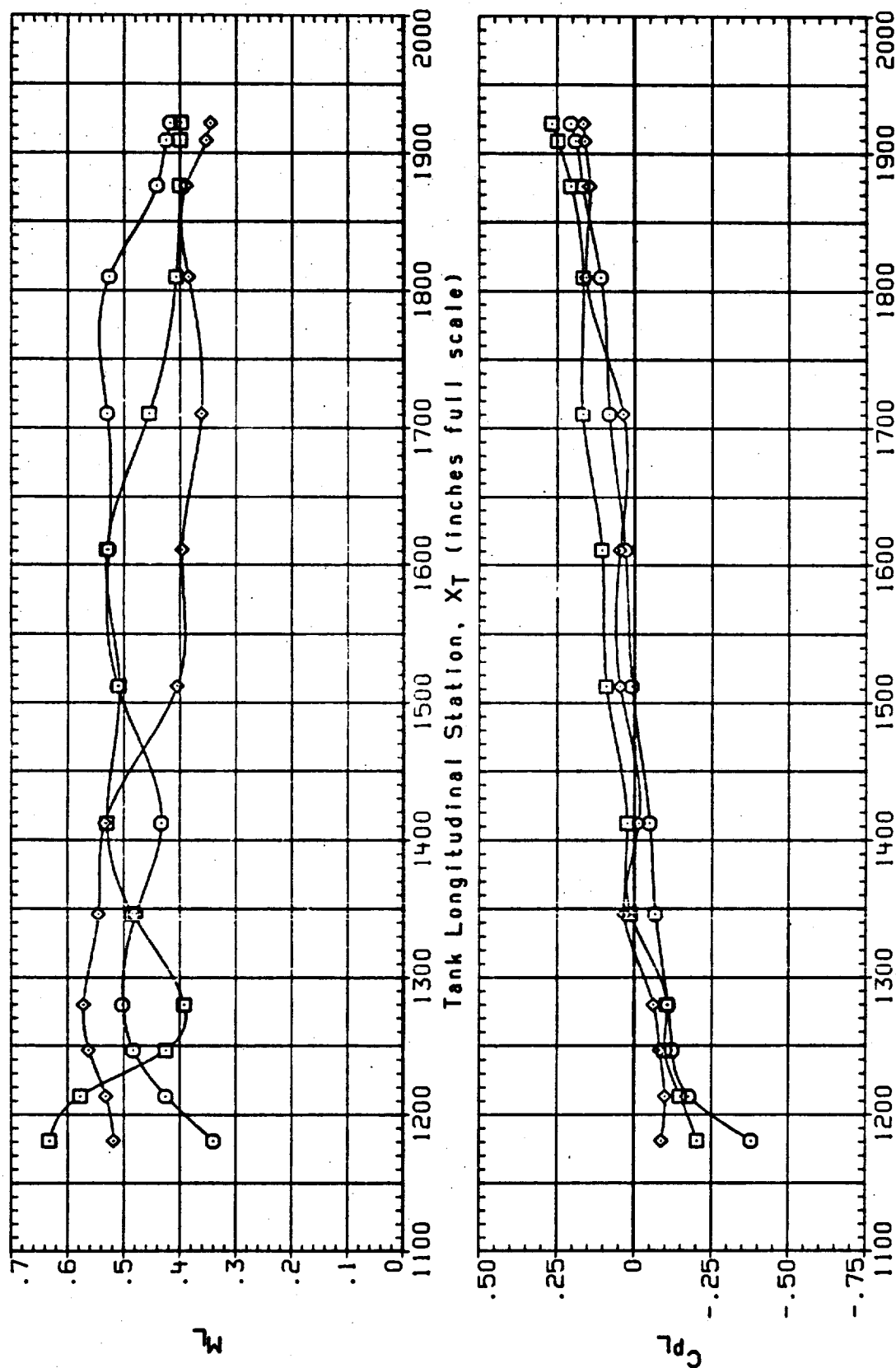


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT
VERSUS TANK STATION

(C)BETA = 4.00

DATA	SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	1B-ELV	OB-ELV
E3U154	○	1A190A. OTS. LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	.600	10.000	.000
E3U254	□	1A190A. OTS. MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	.600	10.000	.000
E3U354	◇	1A190A. OTS. RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	.600	10.000	.000

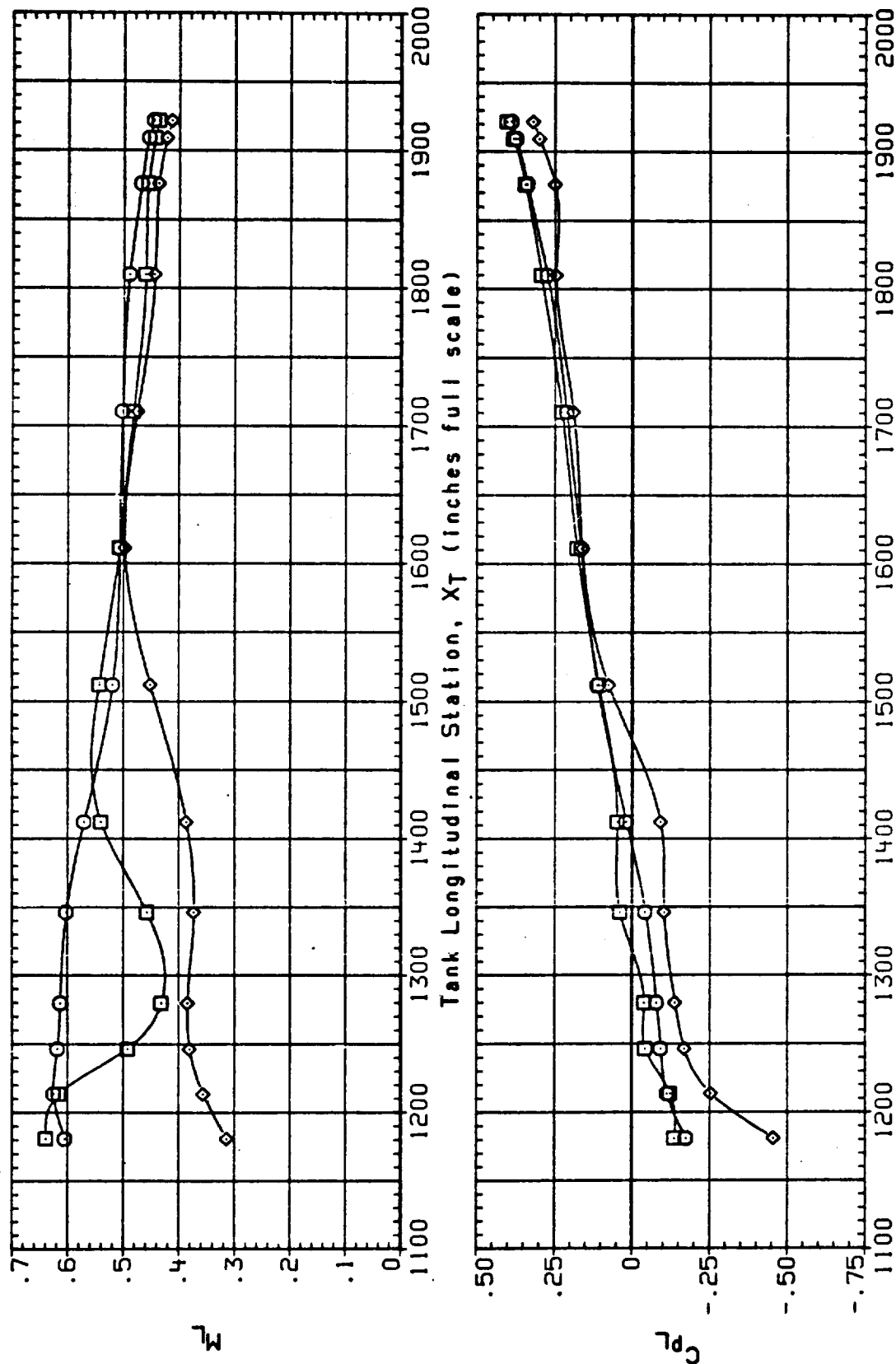


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	1B-ELV	0B-ELV
E3U154	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	.600	10.000	.000
E3U254	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	.600	10.000	.000
E3U354	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	.600	10.000	.000

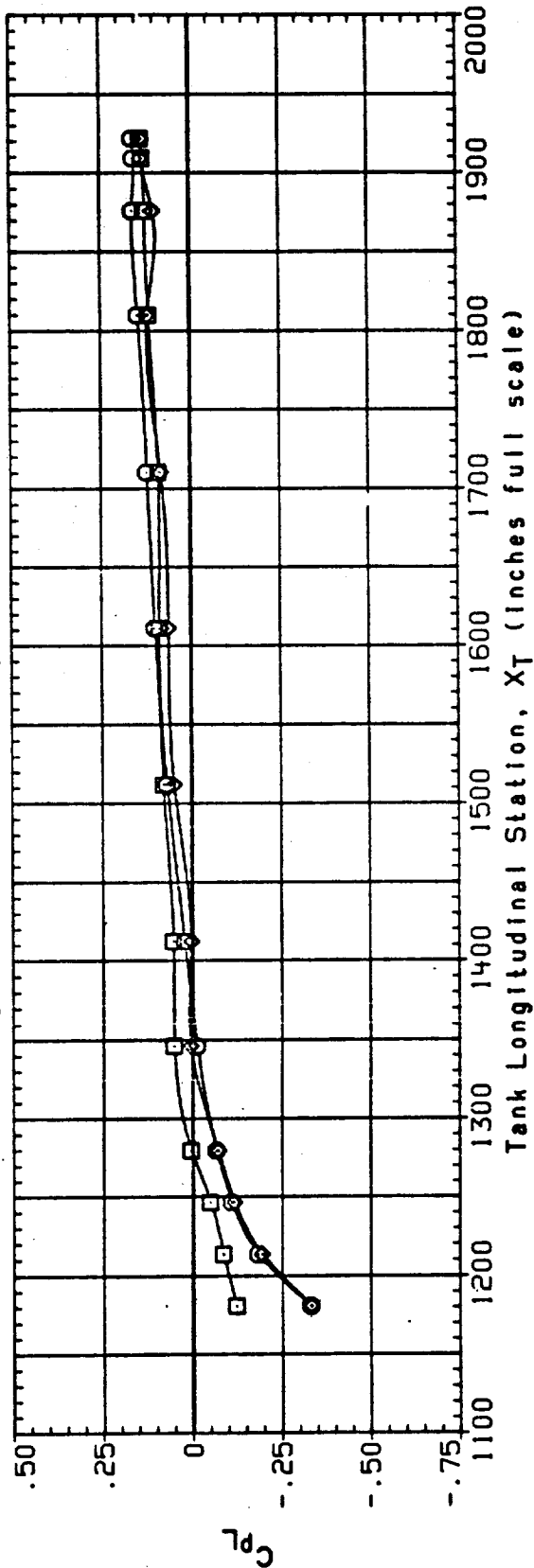
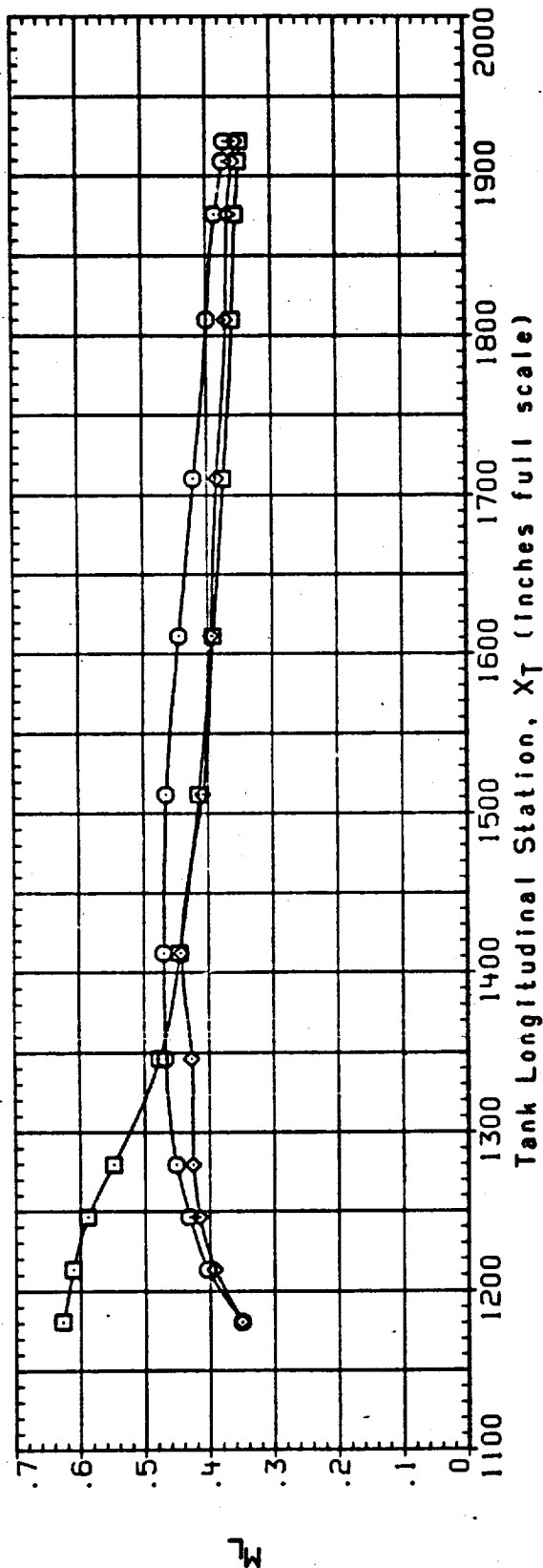


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B) BETA = .00

DATA SET = 1801

DATA SET	CONFIGURATION	THETA	ALPHA	MACH	IB-ELV	OB-ELV
E30154	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	.600	10.000	.000
E30254	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	.600	10.000	.000
E30354	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	.600	10.000	.000

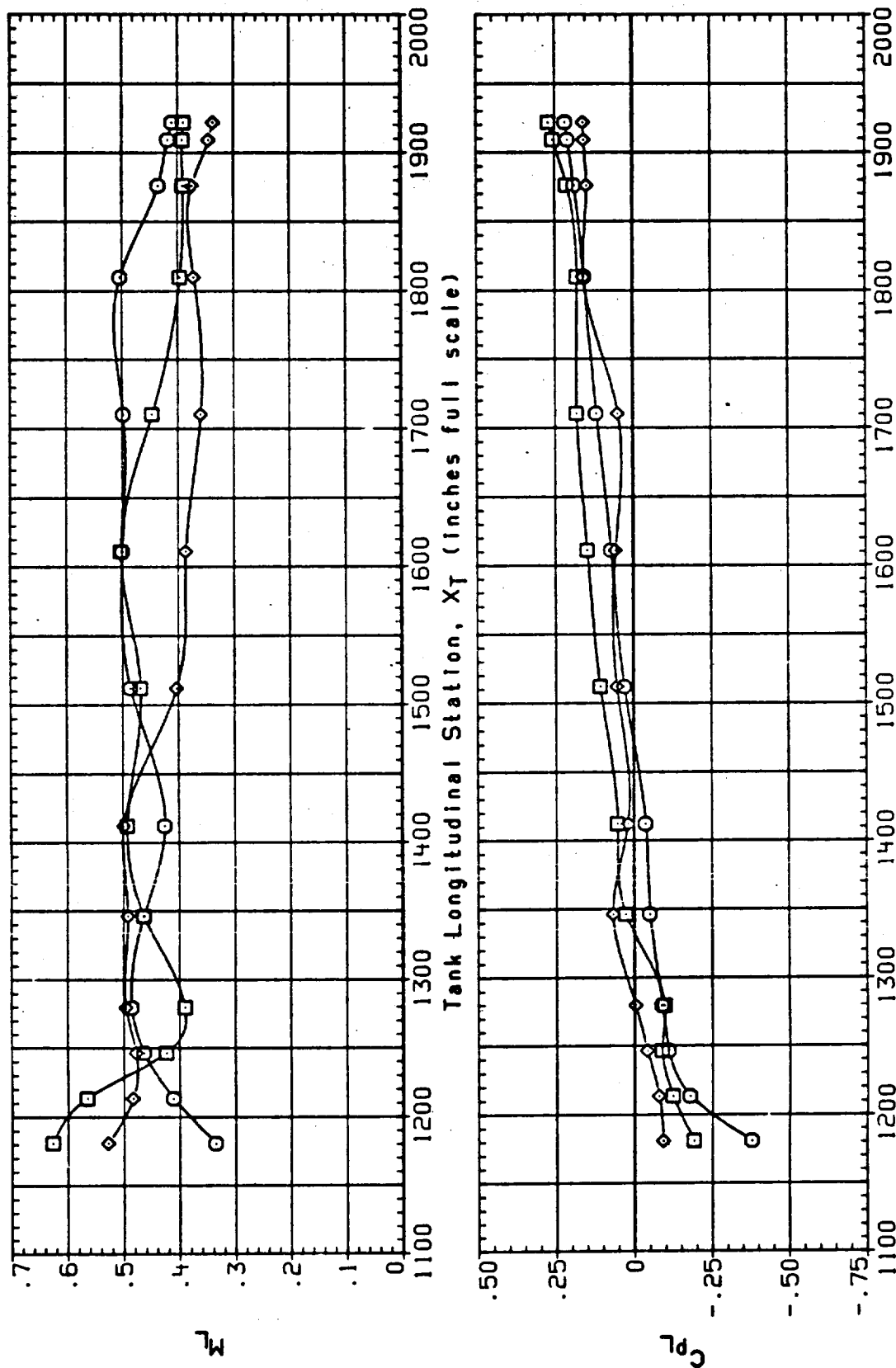


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C)BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	1B-ELV	0B-ELV
E3U156	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.900	10.000	.000
E3U256	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.900	10.000	.000
E3U356	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.900	10.000	.000

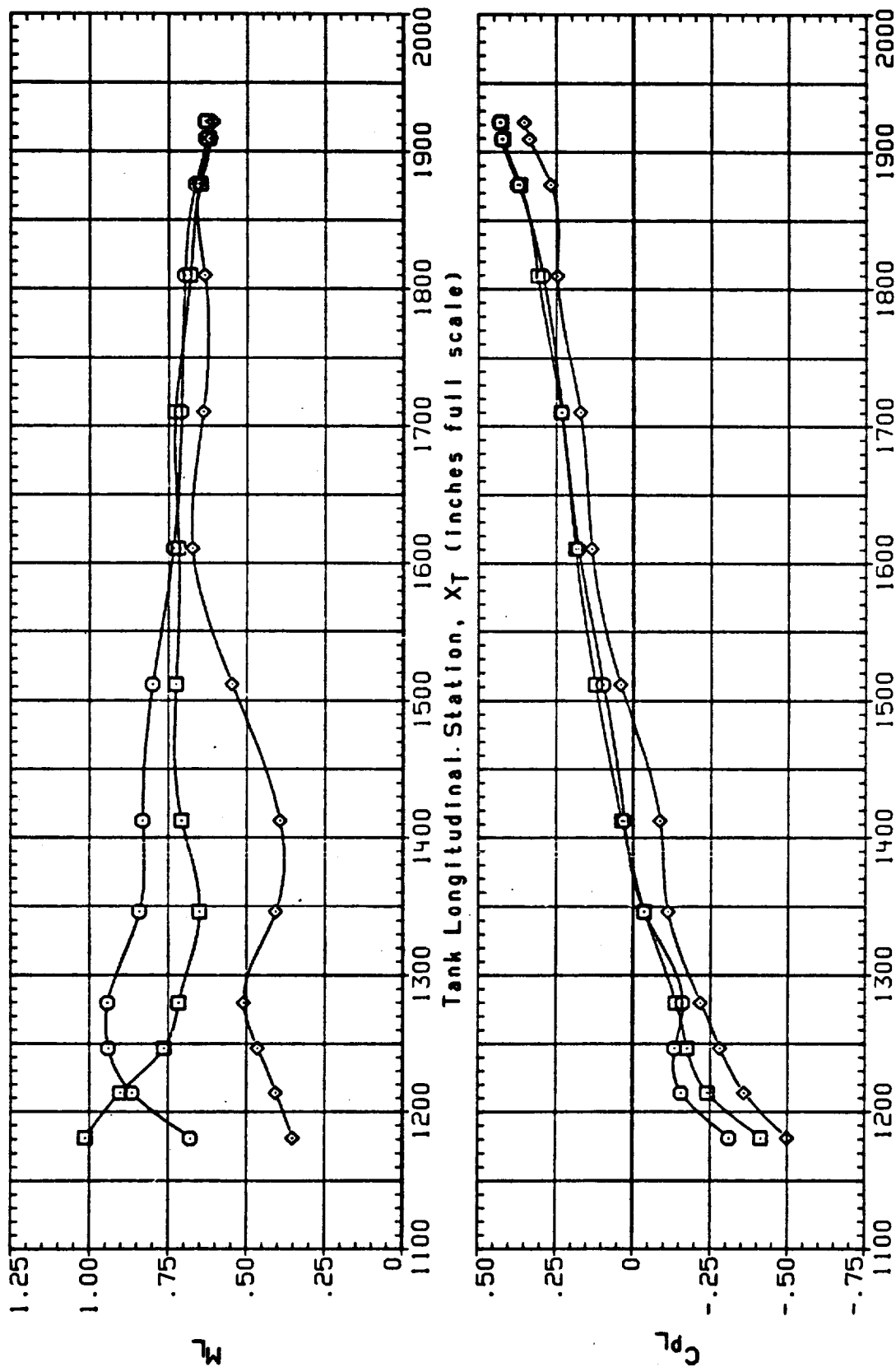


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETA P	ALPHA	MACH	IB-ELV	OB-ELV
E3U156	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.900	10.000	.000
E3U256	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.900	10.000	.000
E3U356	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.900	10.000	.000

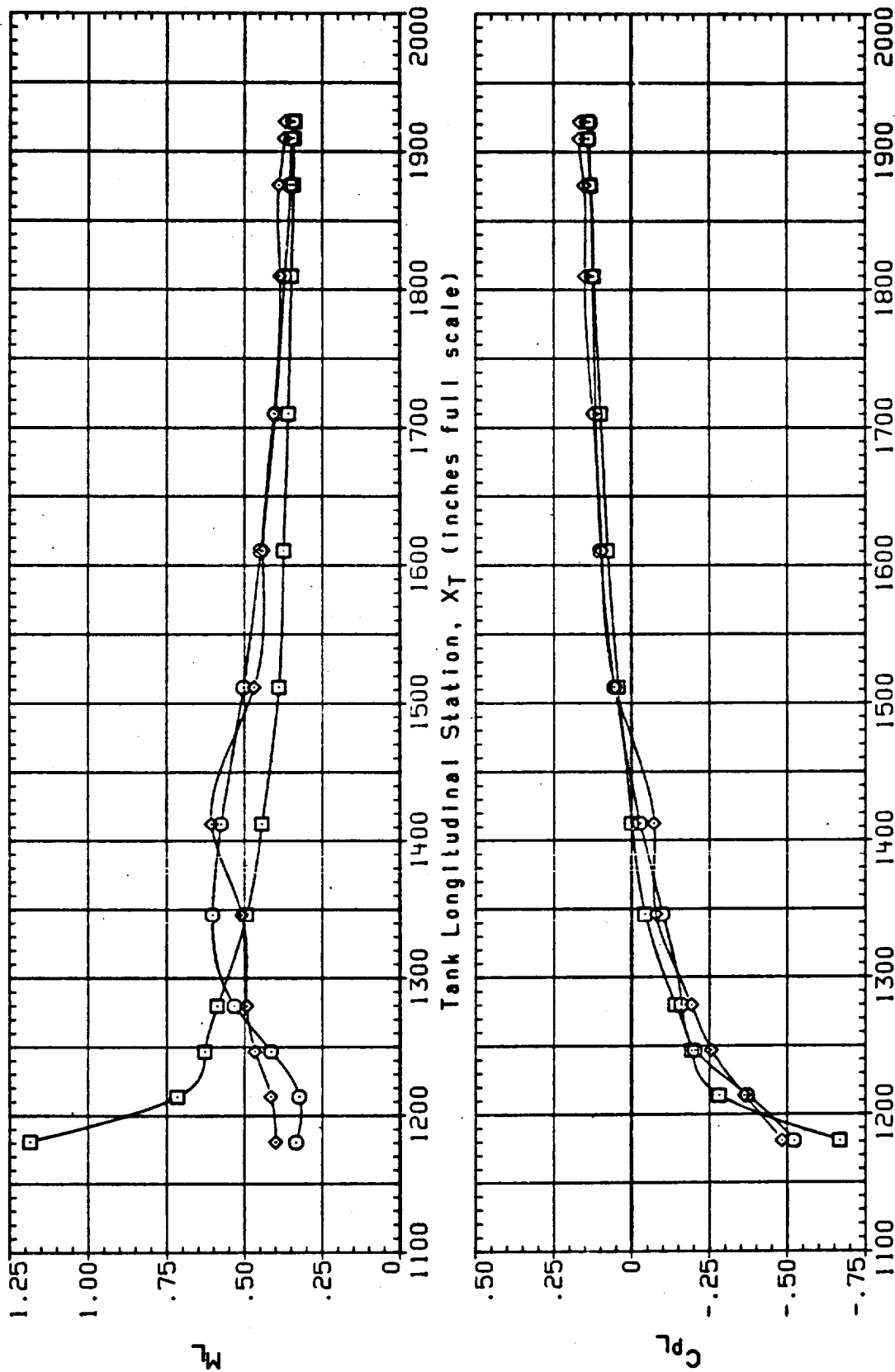


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B)BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	18-ELV	08-ELV
E3U156	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.900	10.000	.000
E3U256	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.900	10.000	.000
E3U356	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.900	10.000	.000

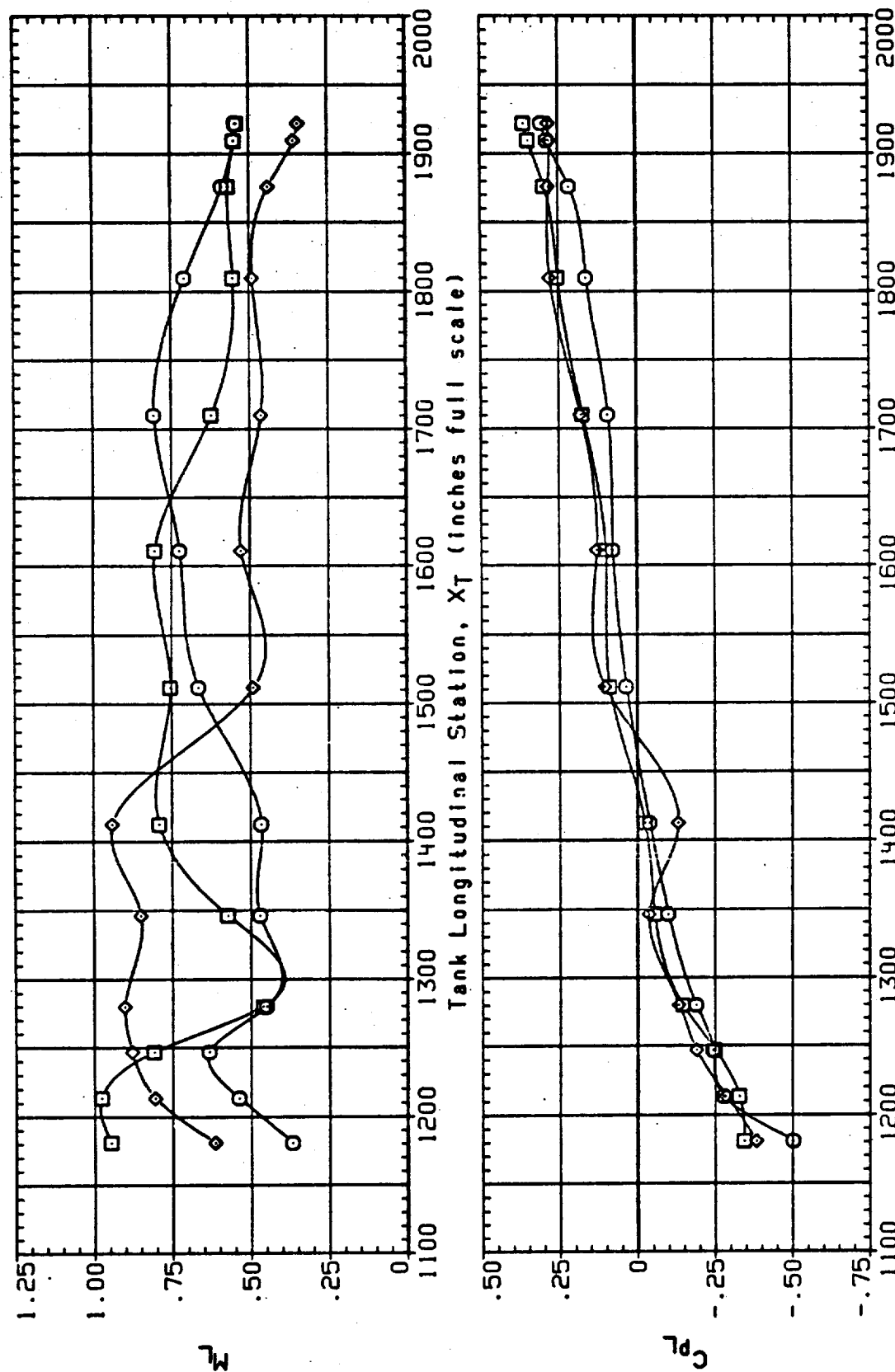


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C)BETA = 4.00

DA	LET SYMBOL	CONFIGURATION	TH	ALPHA	MACH	IB-ELV	OB-ELV
E3U159	○	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.100	10.000	.000
E3U259	□	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.100	10.000	.000
E3U359	◇	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.100	10.000	.000

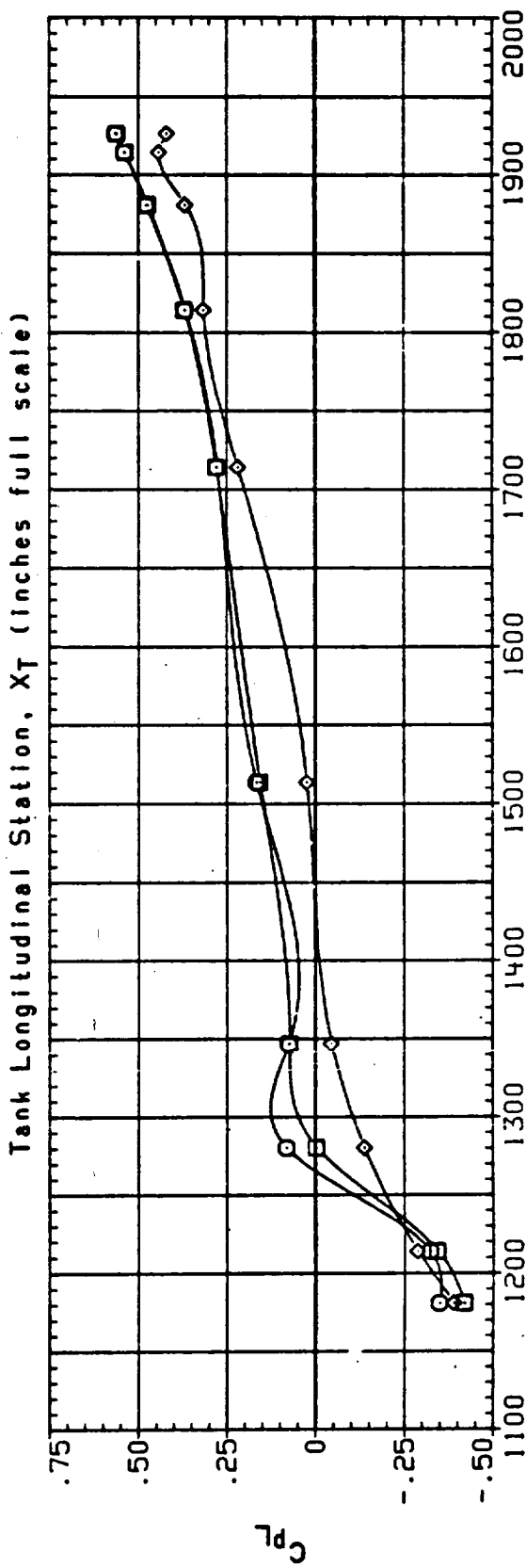
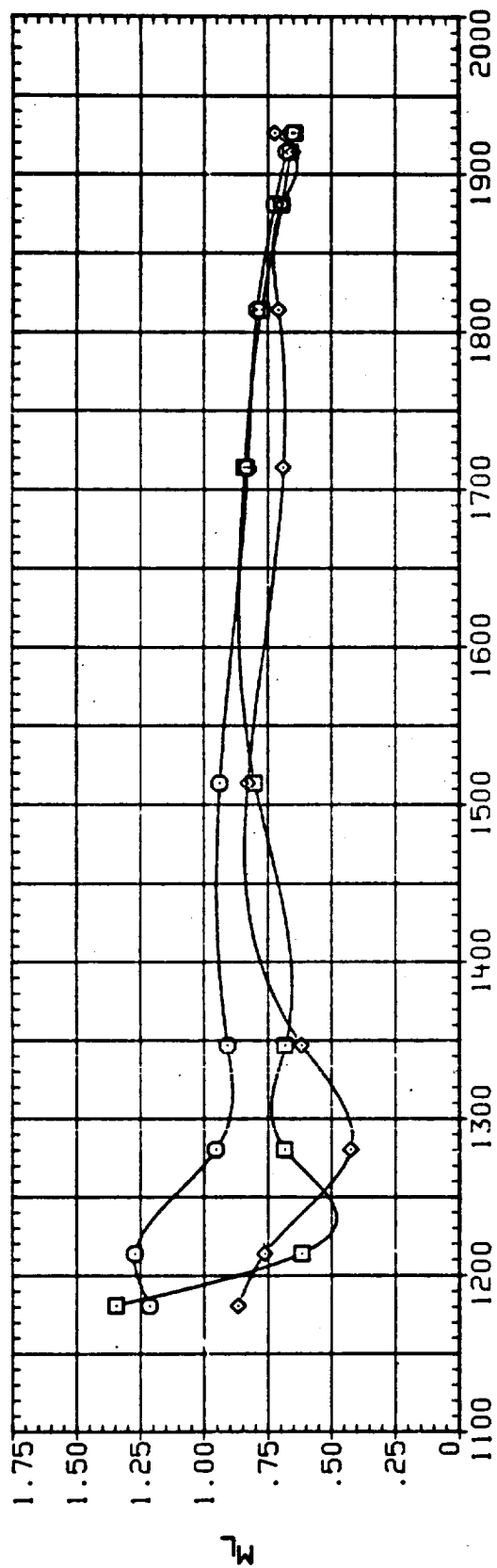


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET	SYMBOL	CONFIGURATION	THETA	ALPHA	MACH	18-ELV	08-ELV
E3U159	○	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.100	10.000	.000
E3U259	□	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.100	10.000	.000
E3U359	◇	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.100	10.000	.000

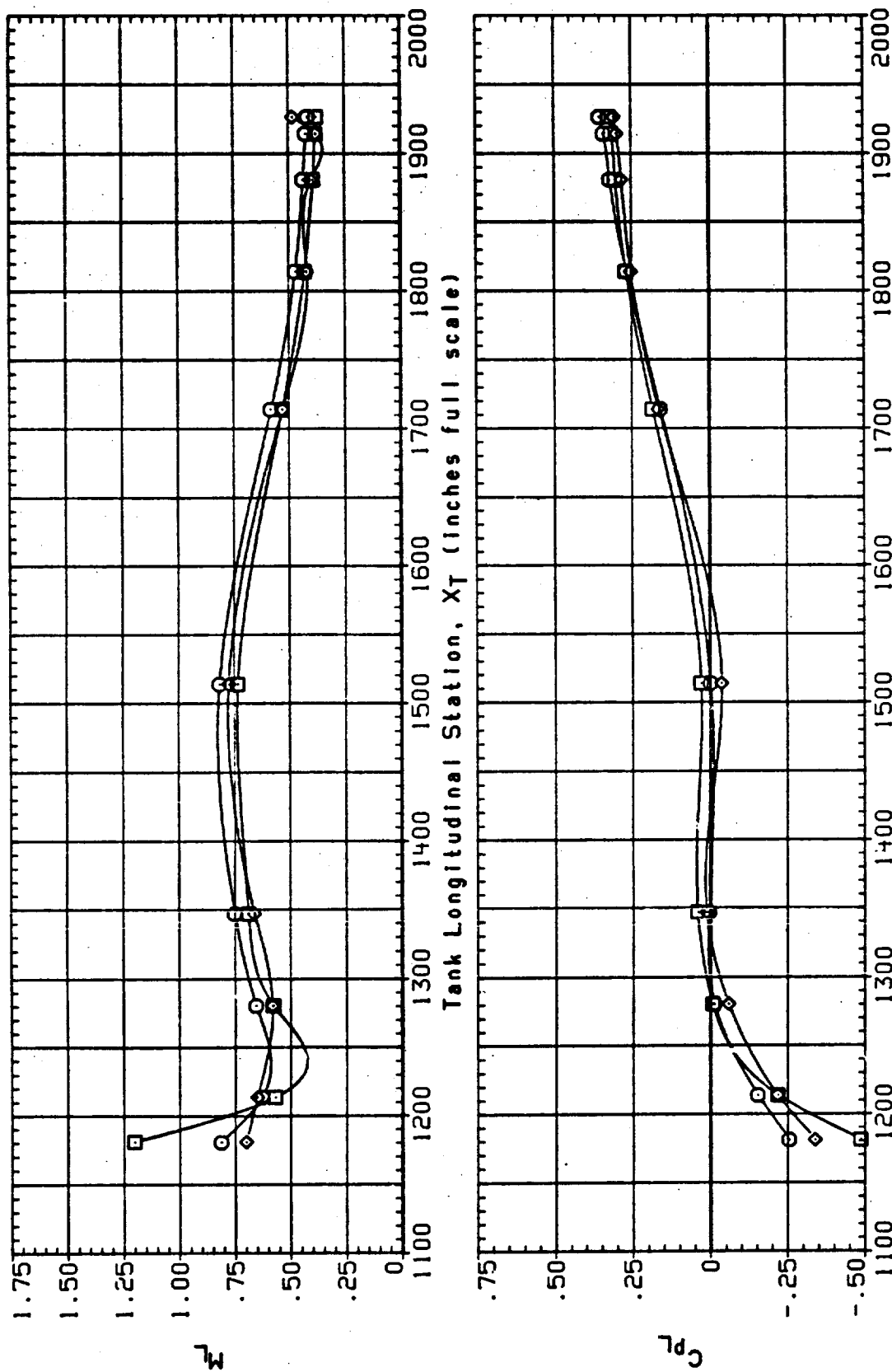


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B) BETA = .00

DATA	SYMBOL	CONFIGURATION	THETA	ALPHA	MACH	IB-ELV	OB-ELV
E3U159	○	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.100	10.000	.000
E3U259	□	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.100	10.000	.000
E3U359	◇	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.100	10.000	.000

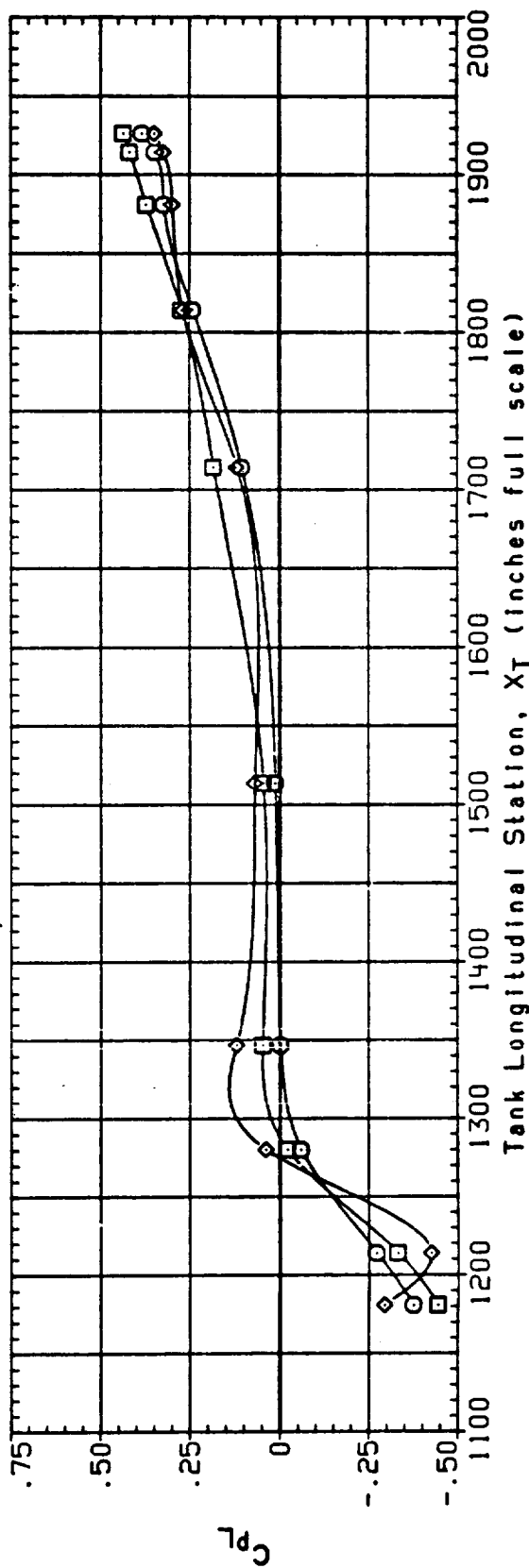
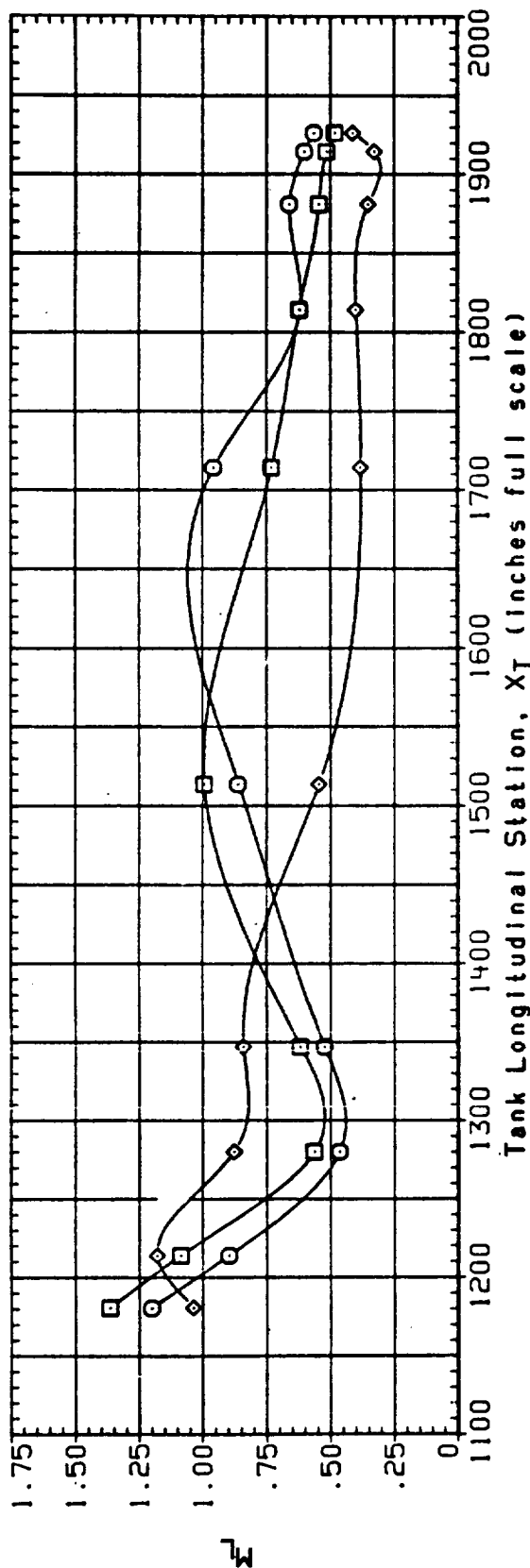


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C) BETA = 4.00

DATA SET	SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	18-ELV	08-ELV
E30161	○	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	1.250	10.000	.000
E30261	□	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	1.250	10.000	.000
E30361	◇	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	155.000	-4.000	1.250	10.000	.000

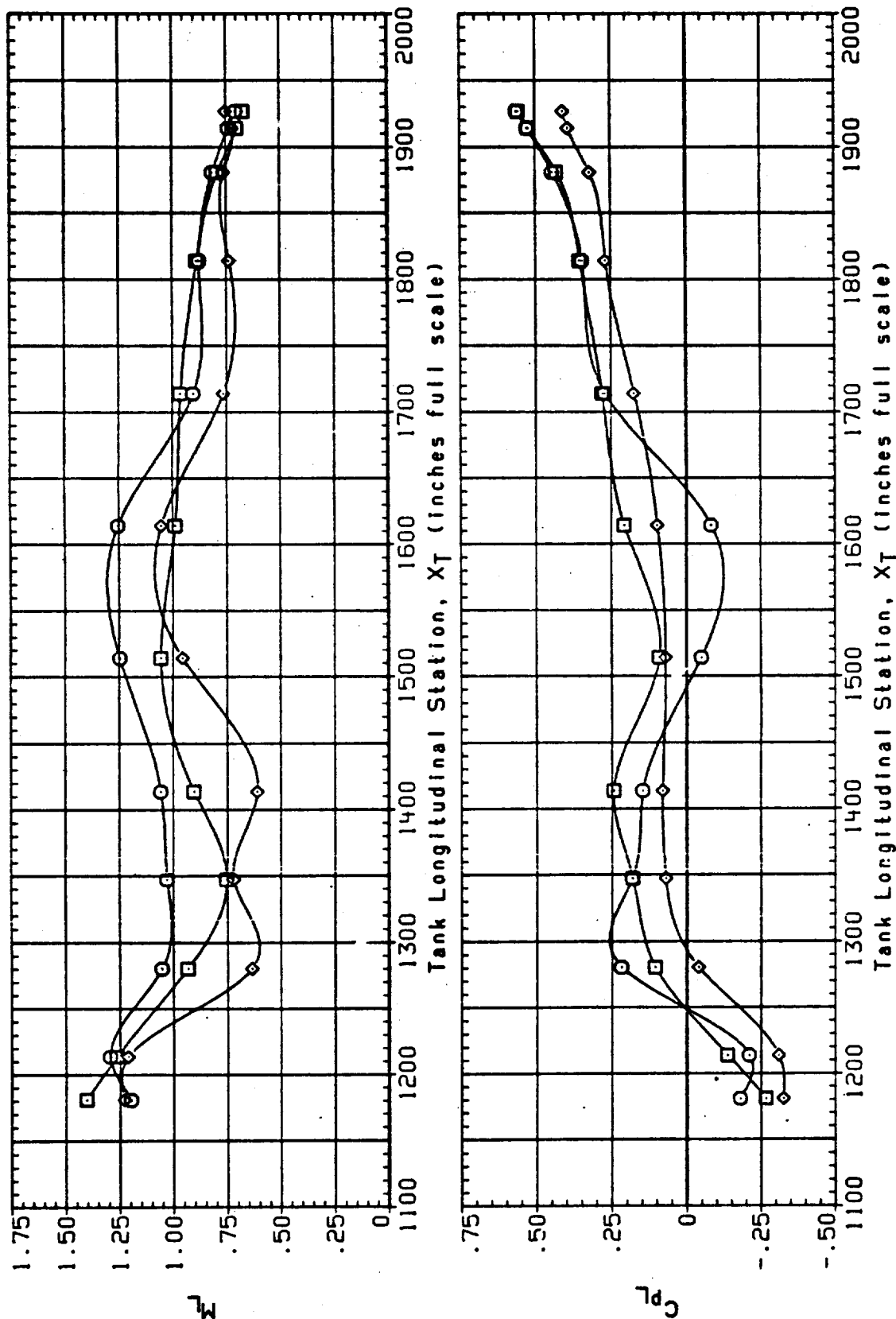


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONF IGURATION	THETAP	ALPHA	MACH	1B-ELV	0B-ELV
E3U161	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	1.250	10.000	.000
E3U261	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	1.250	10.000	.000
E3U361	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	1.250	10.000	.000

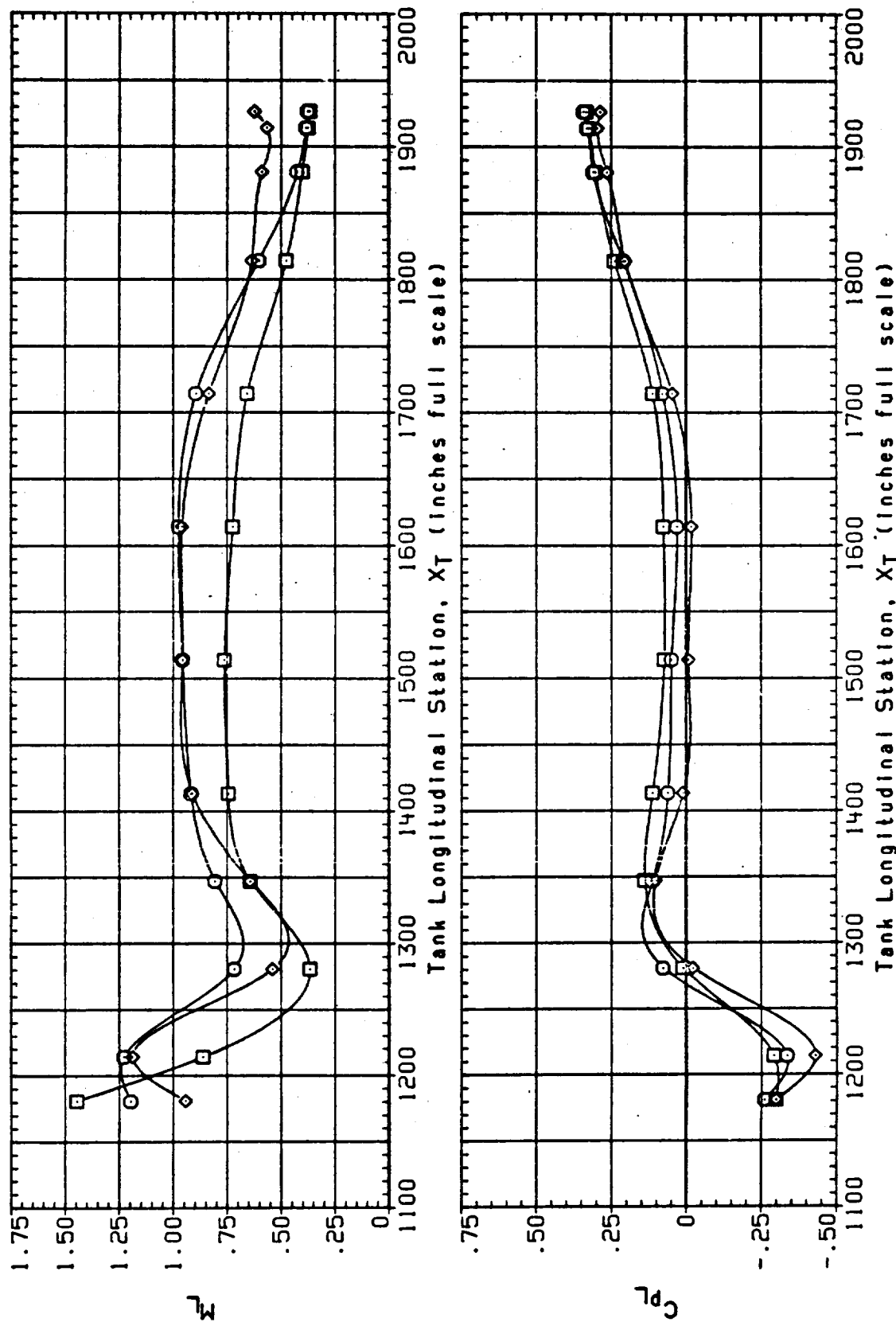


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B)BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETA P	ALPHA	MACH	1B-ELV	OB-ELV
E30161	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	1.250	10.000	.000
E30261	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	1.250	10.000	.000
E30361	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	1.250	10.000	.000

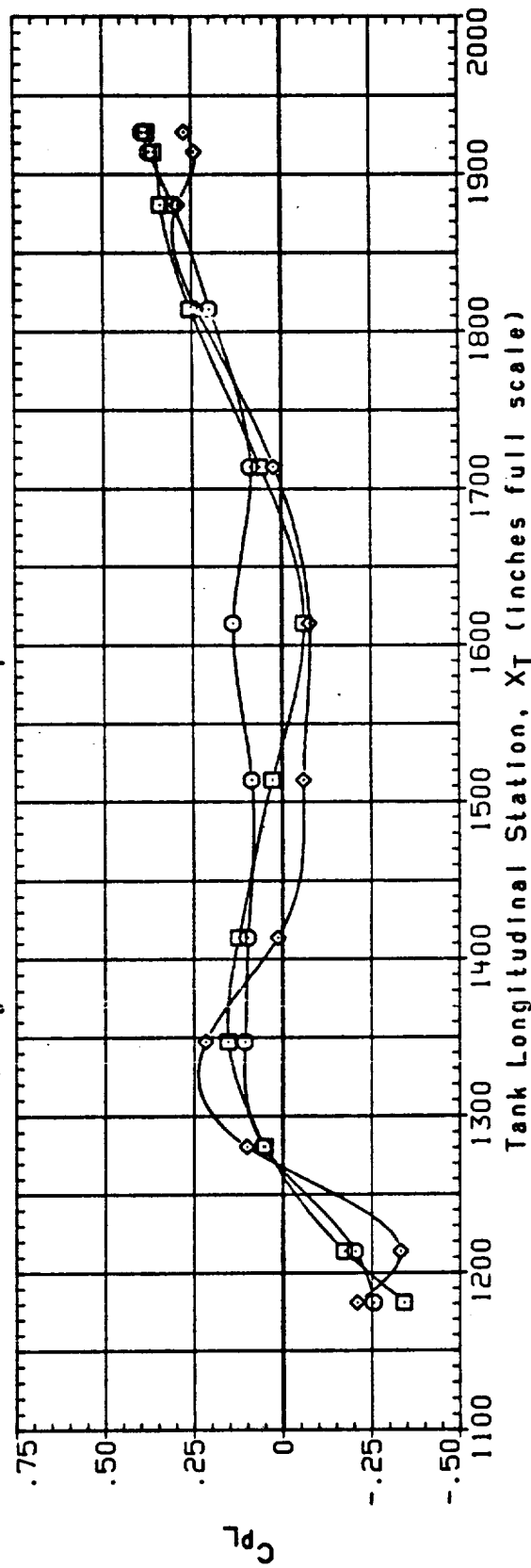
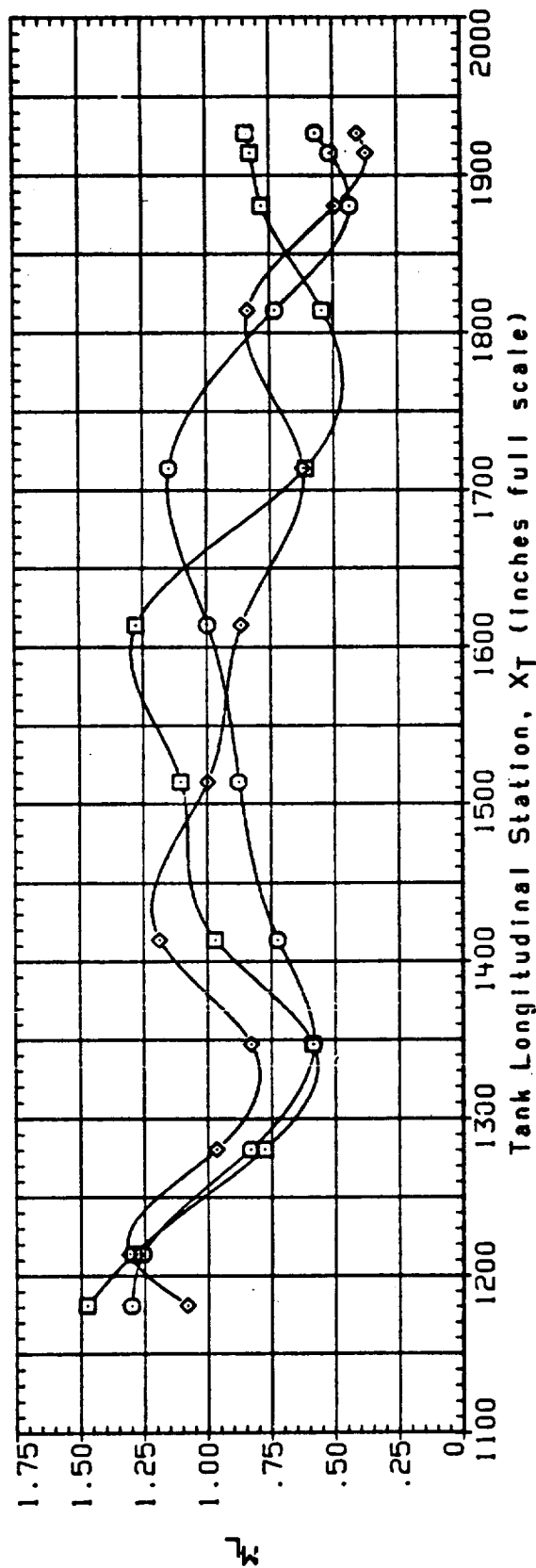


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C)BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
E3U162	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.250	10.000	.000
E3U662	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.250	10.000	.000
E3U362	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.250	10.000	.000

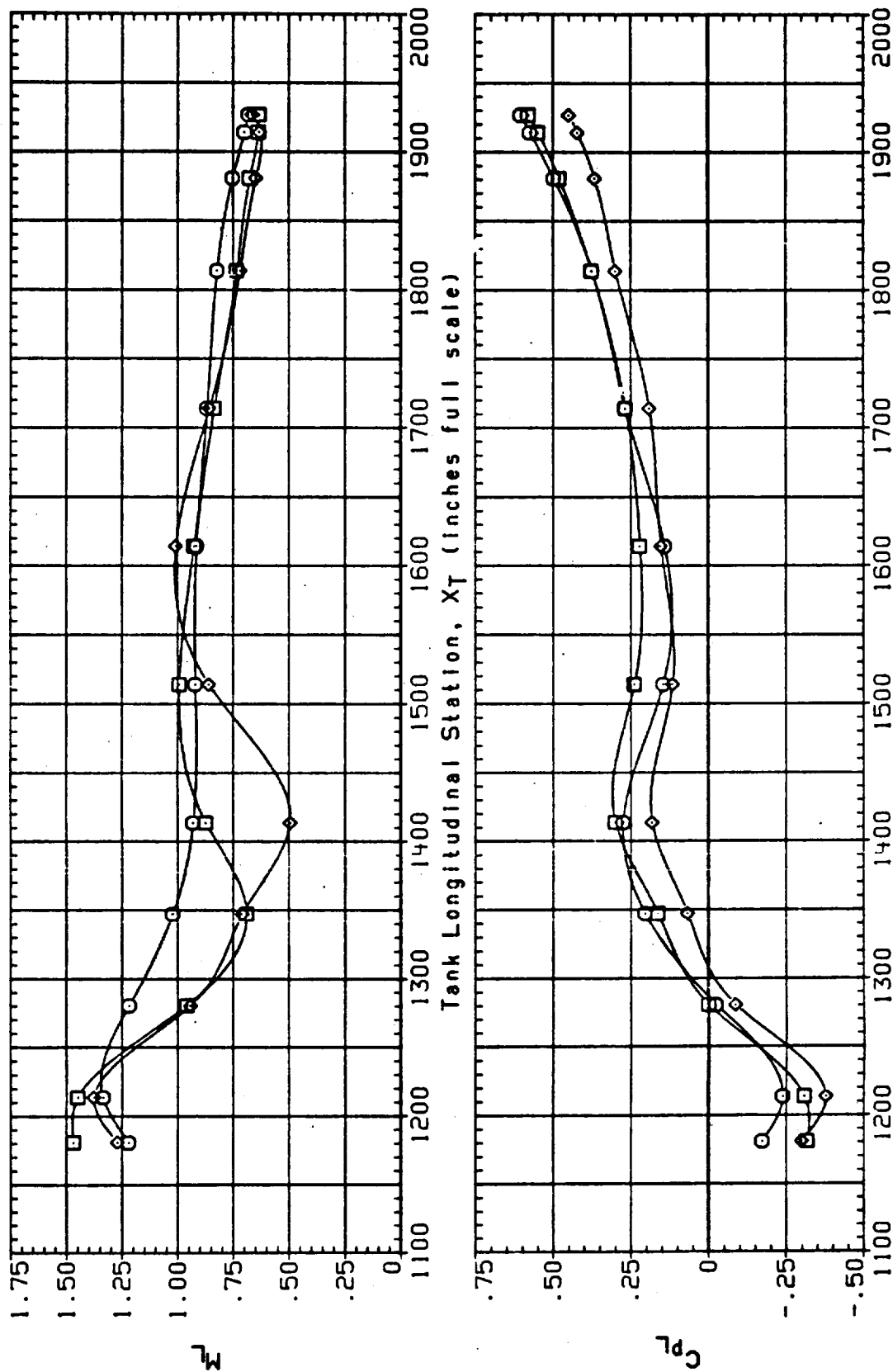


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	18-ELV	08-ELV
E30162	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.250	19.000	.000
E30262	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.250	10.000	.000
E30362	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.250	10.300	.000

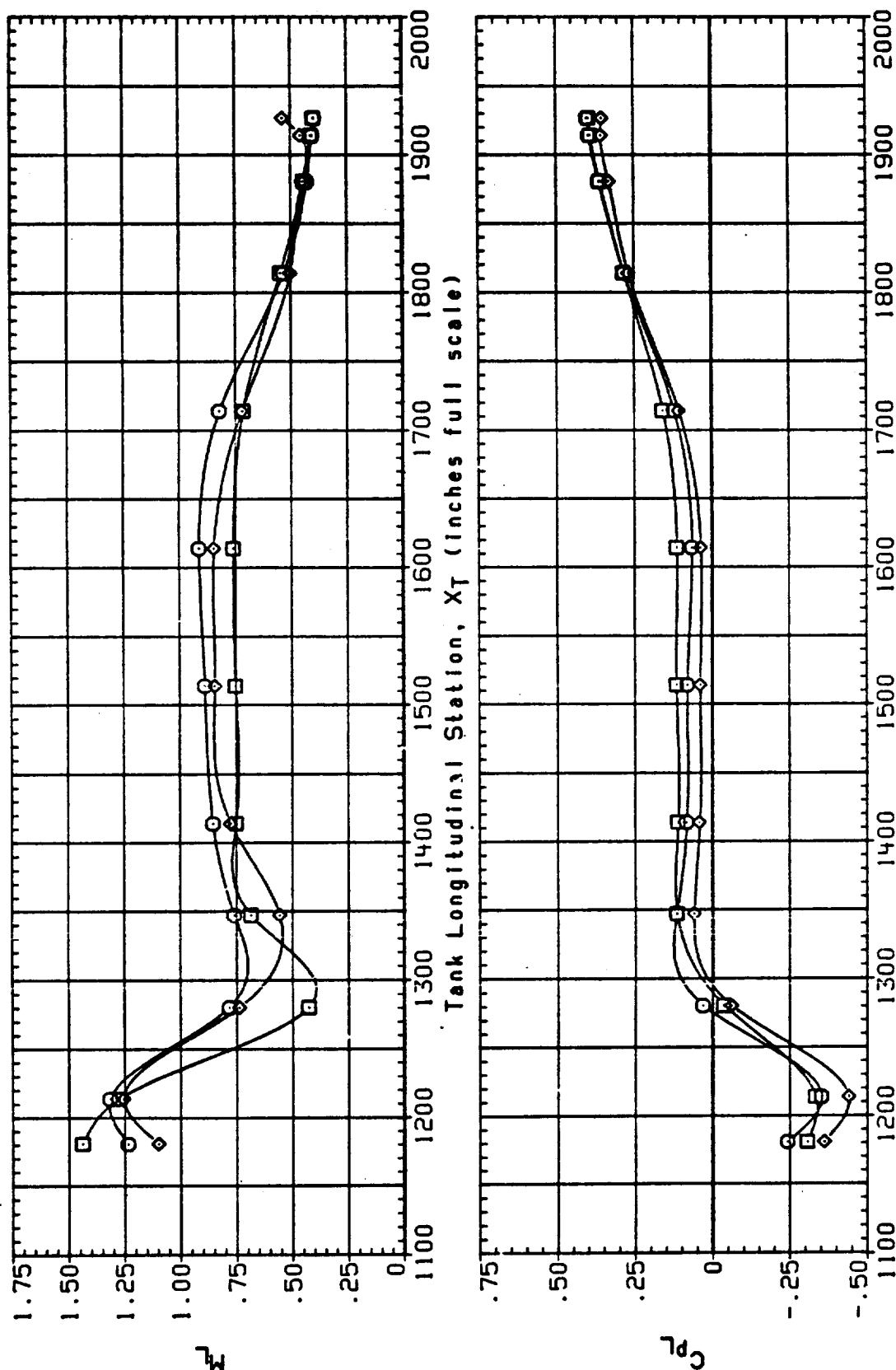


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B) BETA = .00

DATA -- SYMBOL

E3U162
E3U262
E3U362

CONFIGURATION

IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)
IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)
IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)

THETA

195.000
180.000
165.000

ALPHA

.000
.000
.000

MACH

1.250
1.250
1.250

IB-ELV

10.000
10.000
10.000

OB-ELV

.000
.000
.000

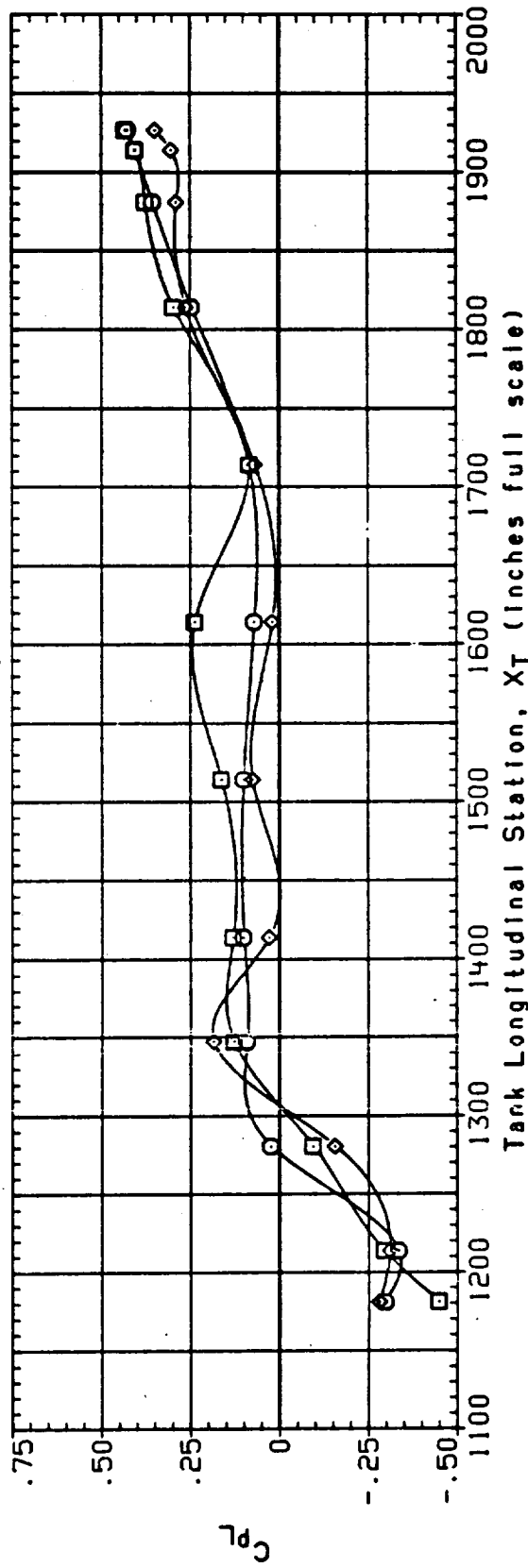
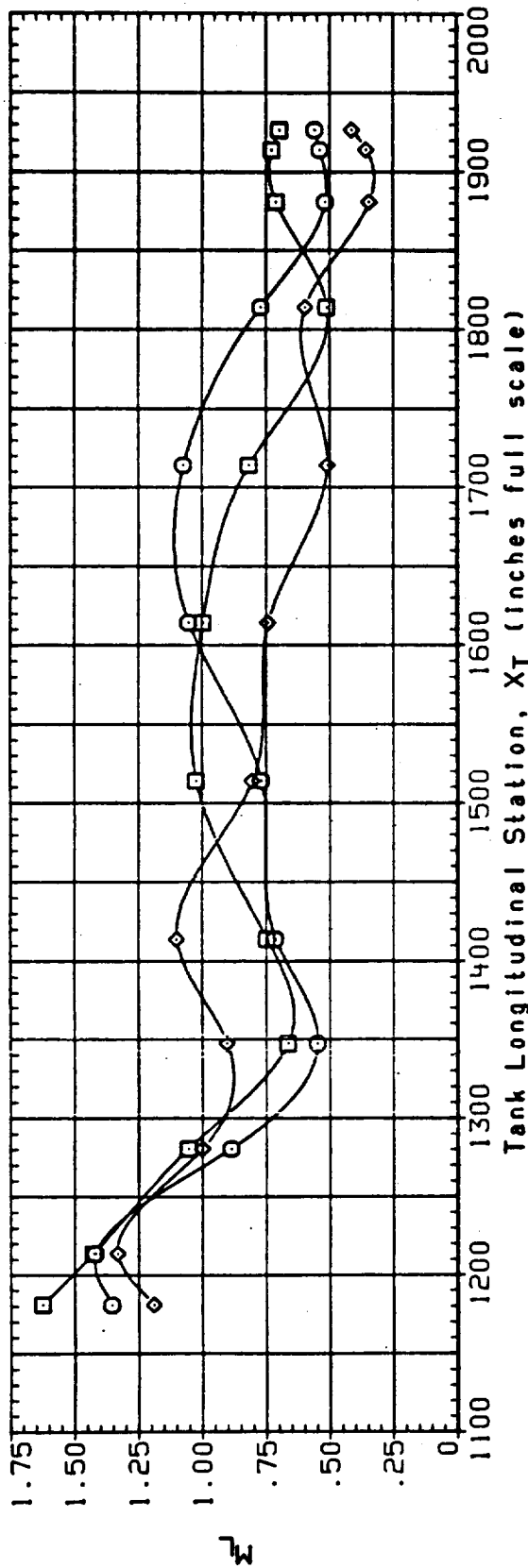


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C)BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
E3U163	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	1.250	10.000	.000
E3U263	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	1.250	10.000	.000
E3U363	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	1.250	10.000	.000

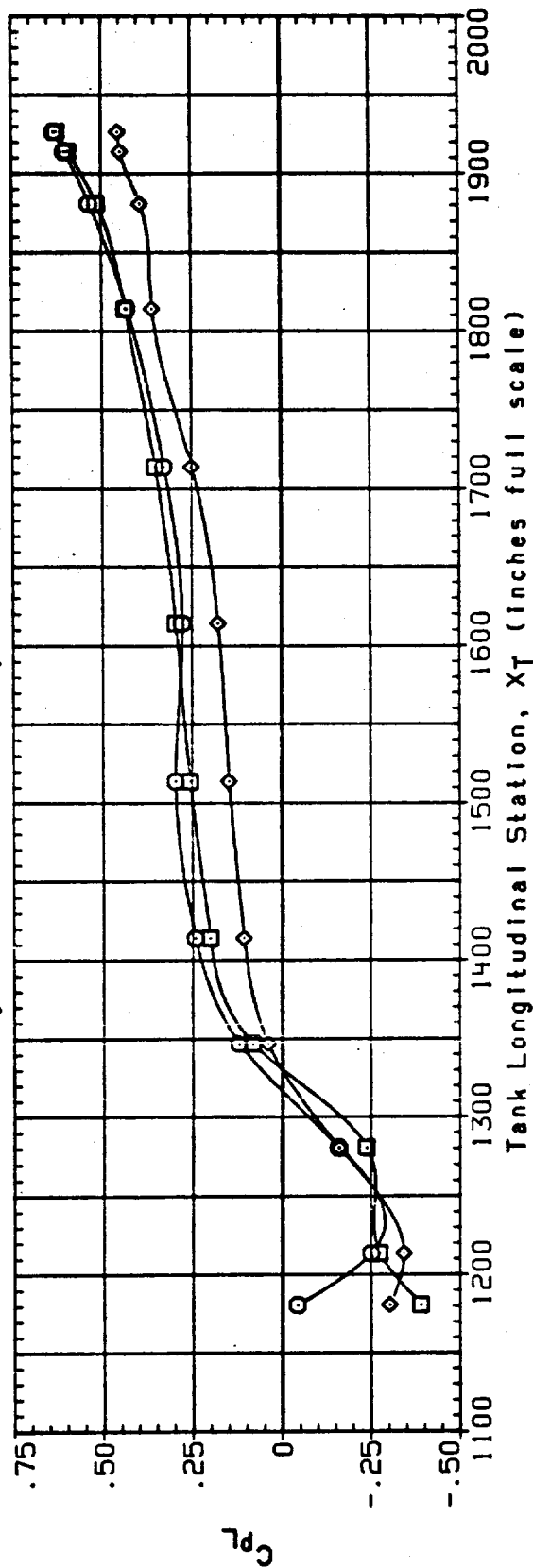
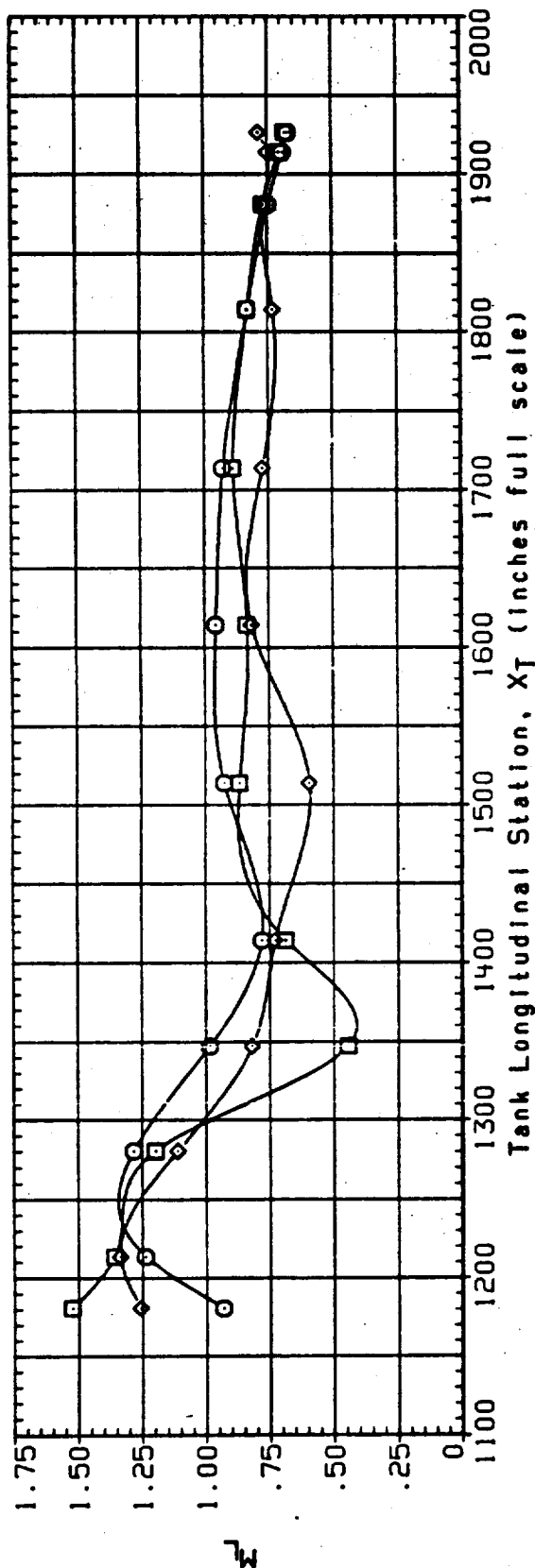


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET	SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
E3U163	□	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	1.250	10.000	.000
E3U263	○	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	1.250	10.000	.000
E3U363	◇	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	1.250	10.000	.000

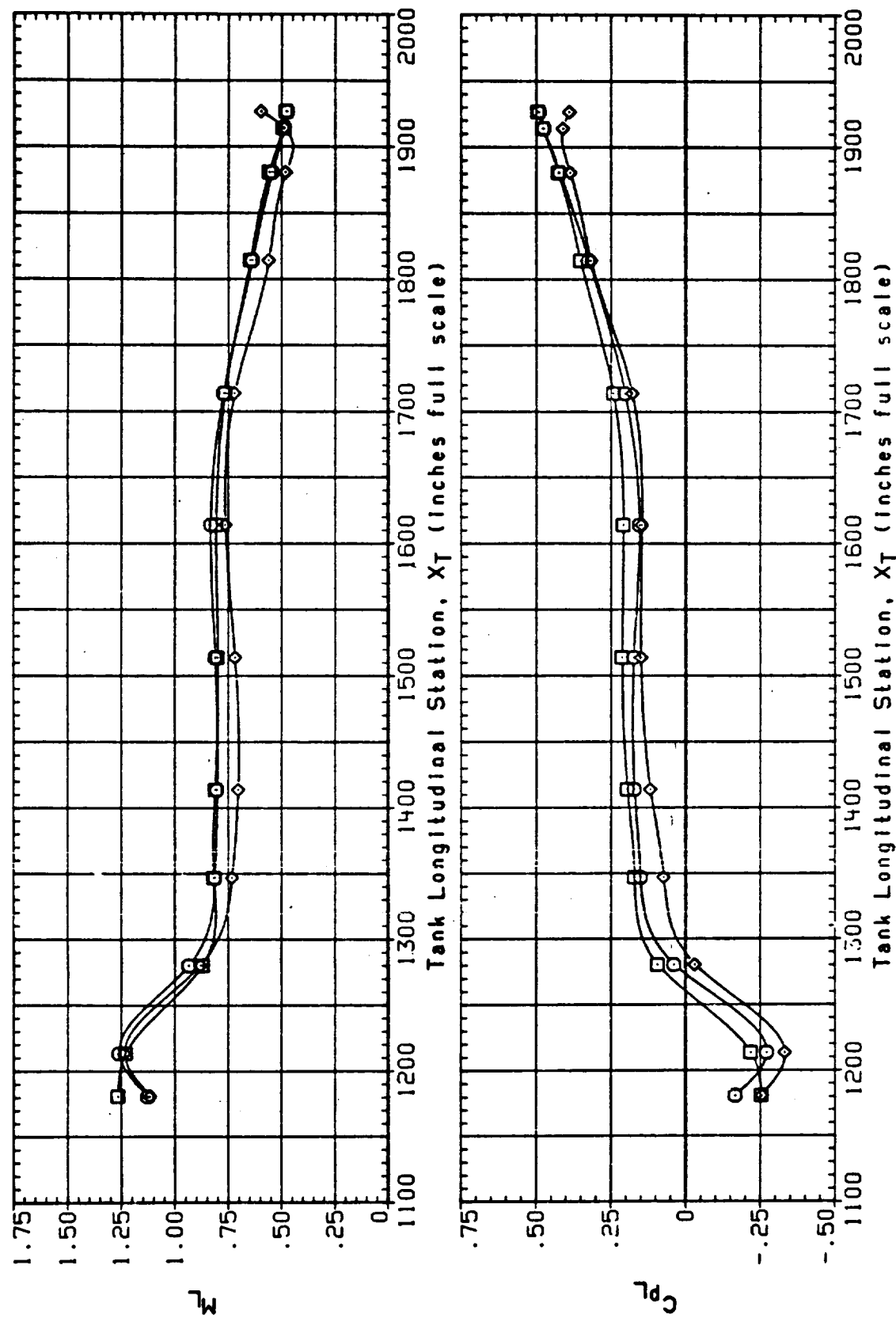


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

DATA SET SYMBOL	CONFIGURATION	THETA P	ALPHA	MACH	IB-ELV	OB-ELV
E3J163	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	1.250	10.000	.000
E3J263	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	1.250	10.000	.000
E3J363	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	1.250	10.000	.000

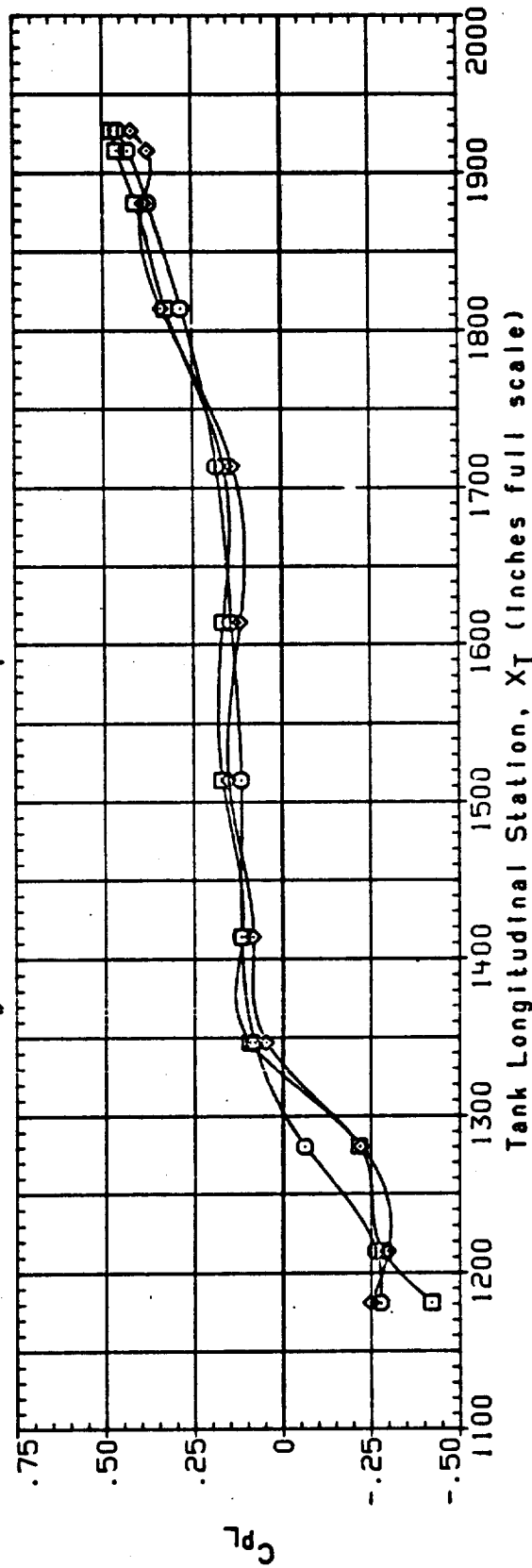
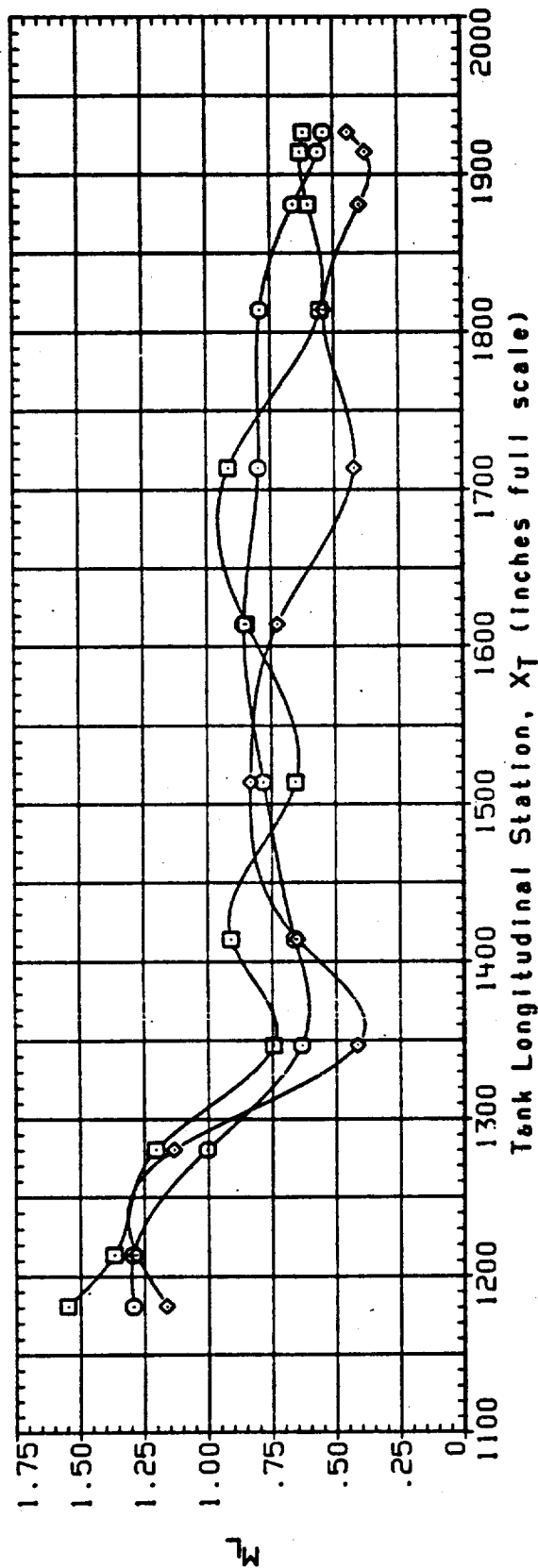


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C)BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	TH-ETAP	ALPHA	MACH	1B-ELV	OB-ELV
E3J165	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.400	10.000	.000
E3J265	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.400	10.000	.000
E3J365	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.400	10.000	.000

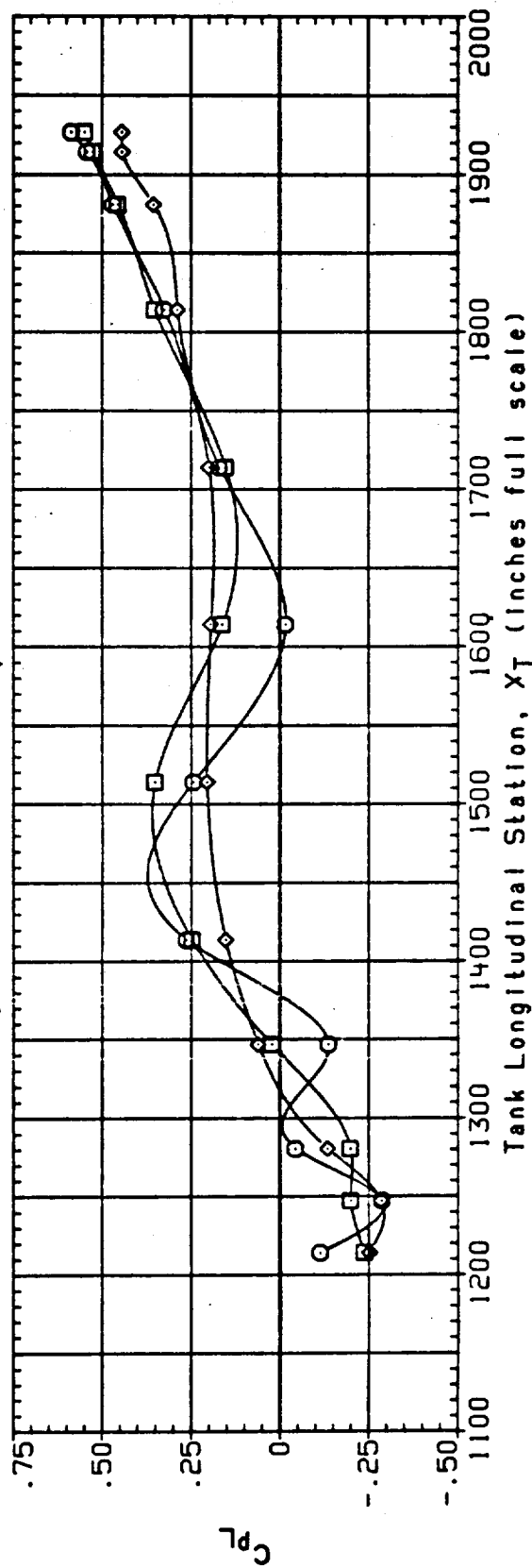
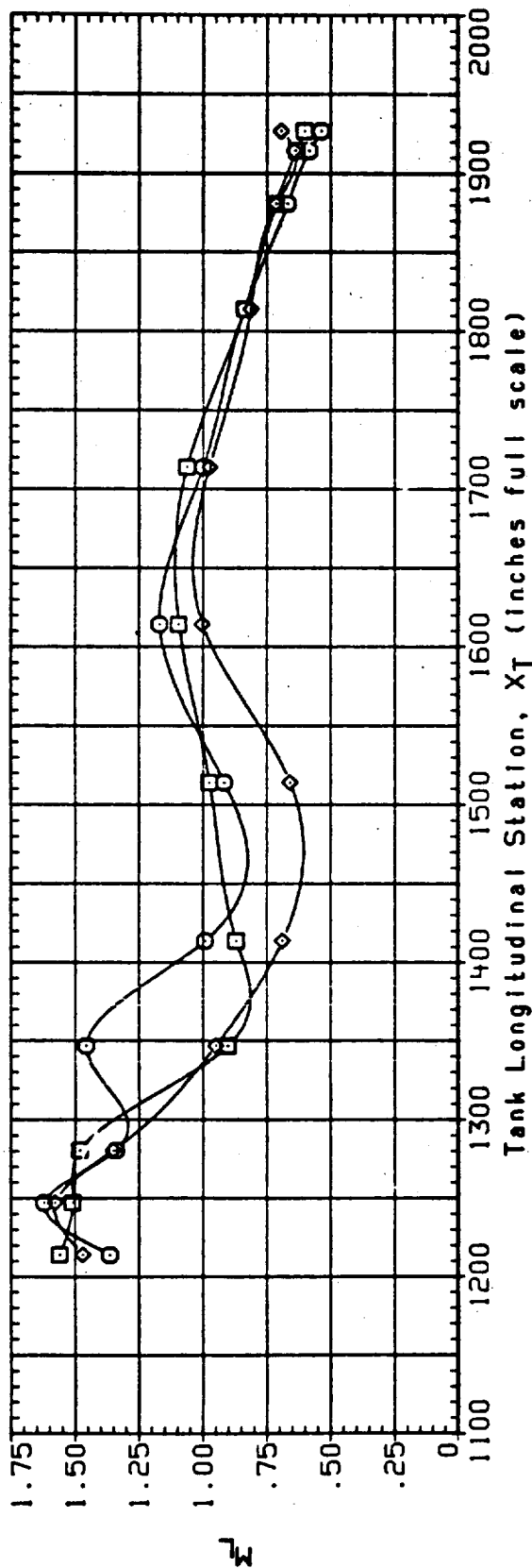


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	TH-ETAP	ALPHA	MACH	18-ELV	08-ELV
E3J165	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.400	10.000	.000
E3J265	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.400	10.000	.000
E3J365	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.400	10.000	.000

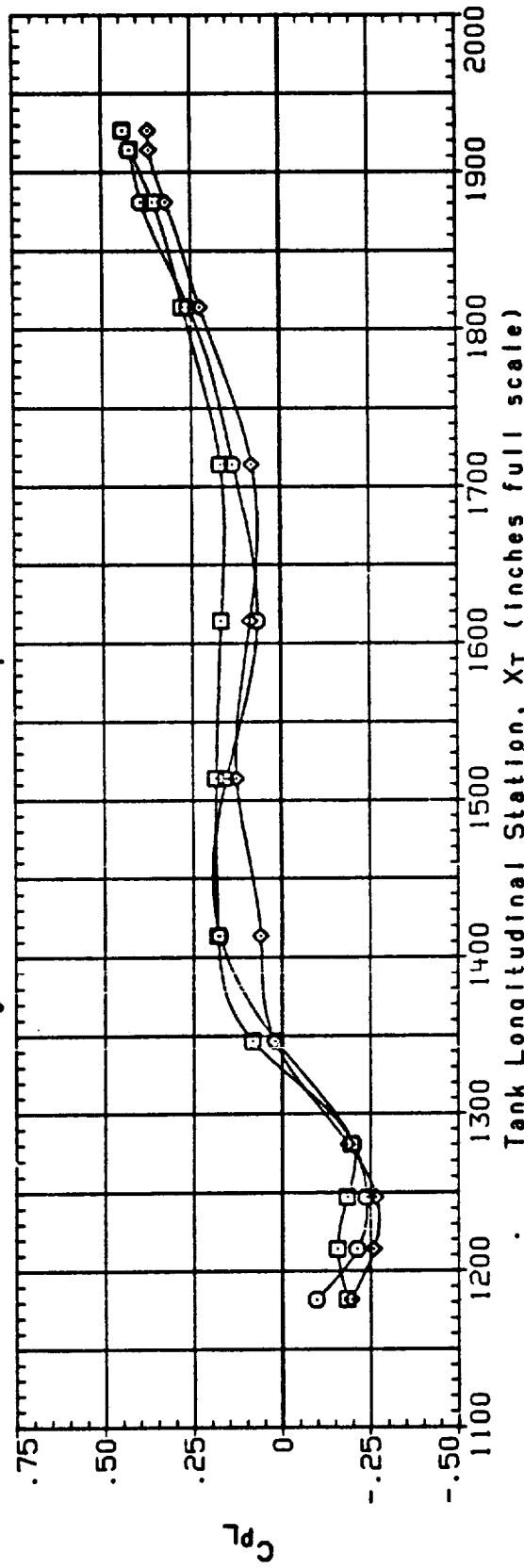
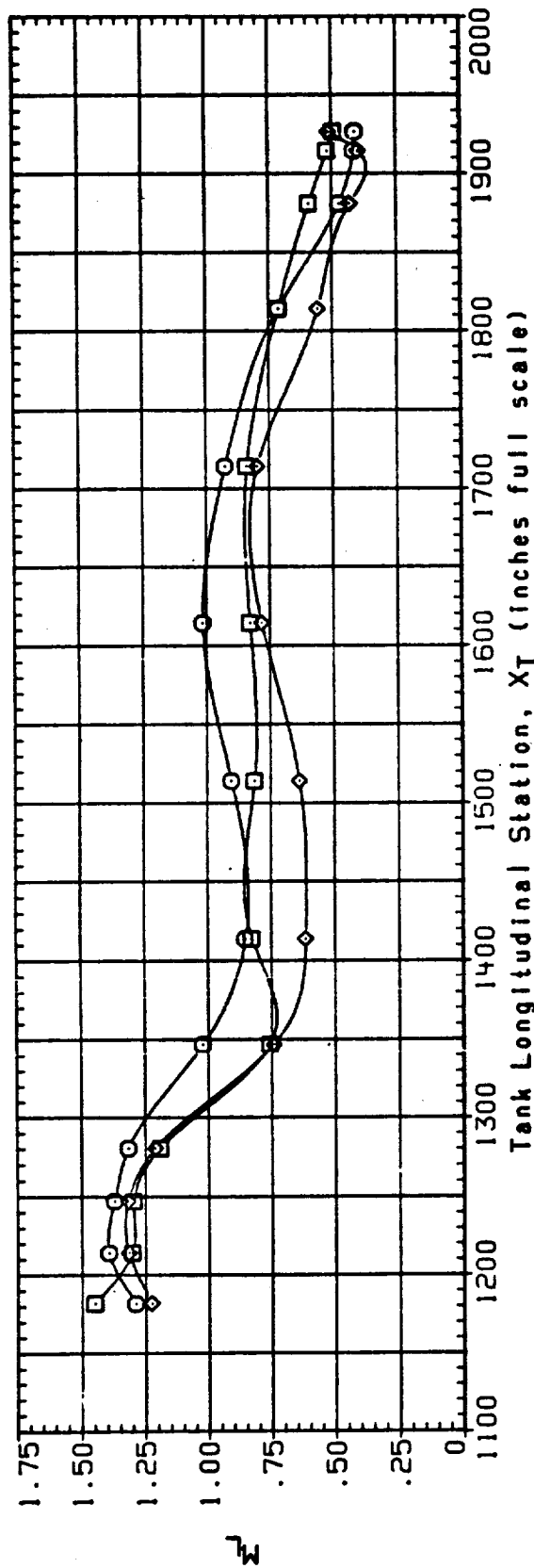


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT
VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL	CONFIGURATION	THE.IMP	ALPHA	MACH	1B-ELV	0B-ELV
E3U165	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.400	10.000	.000
E3U265	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.400	10.000	.000
E3U365	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.400	10.000	.000

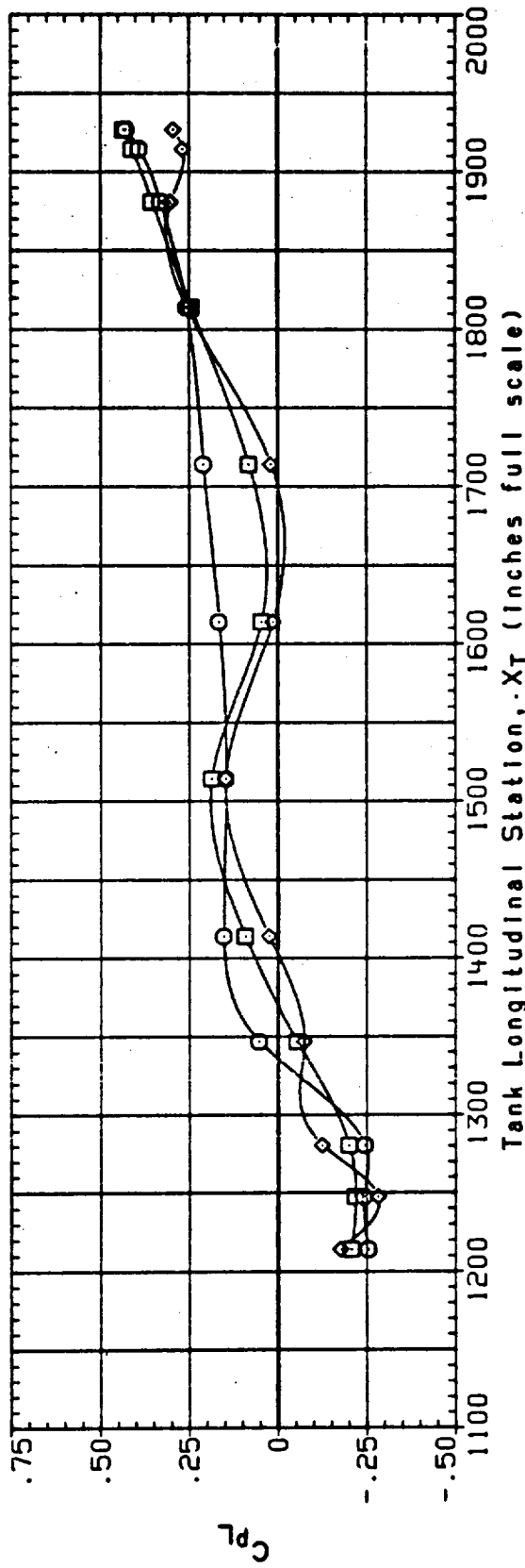
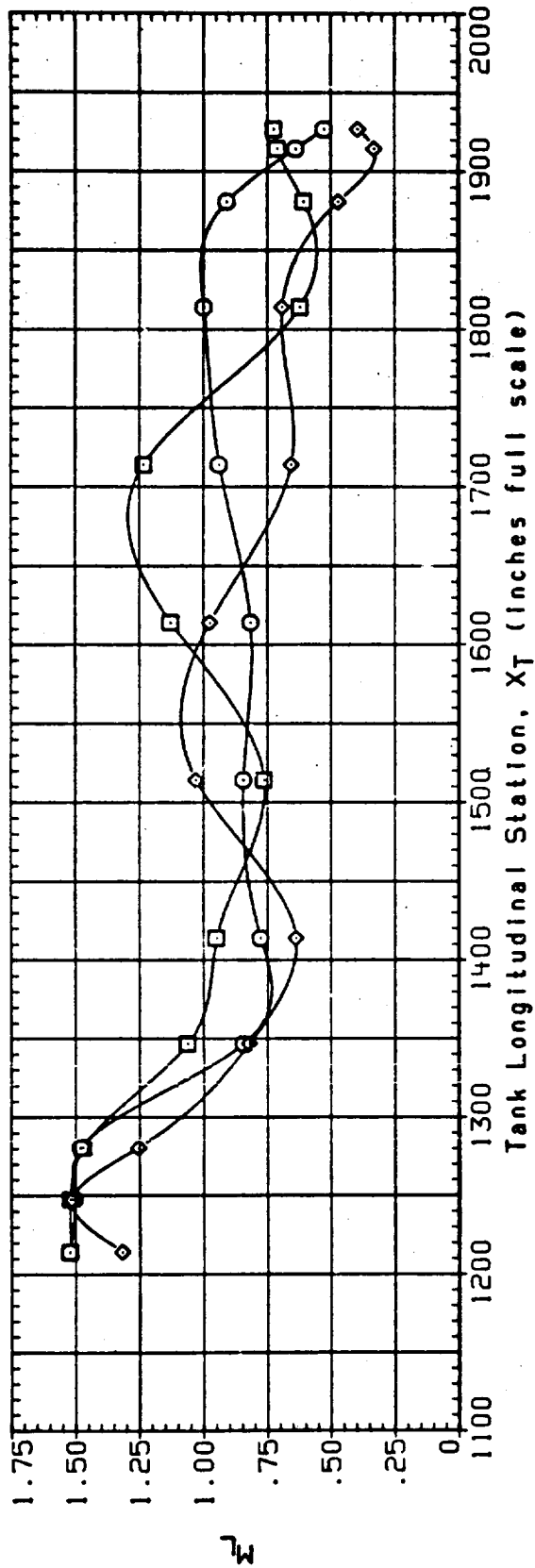


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C) BETA = 4.00

DATA SET SYMBOL		CONFIGURATION		THETA		BETA		MACH		1B-ELV		0B-ELV	
E3V160	○	1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	1.550	10.000	-5.000						
E3V260	□	1A190B, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	1.550	10.000	-5.000						
E3V360	◇	1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	1.550	10.000	-5.000						

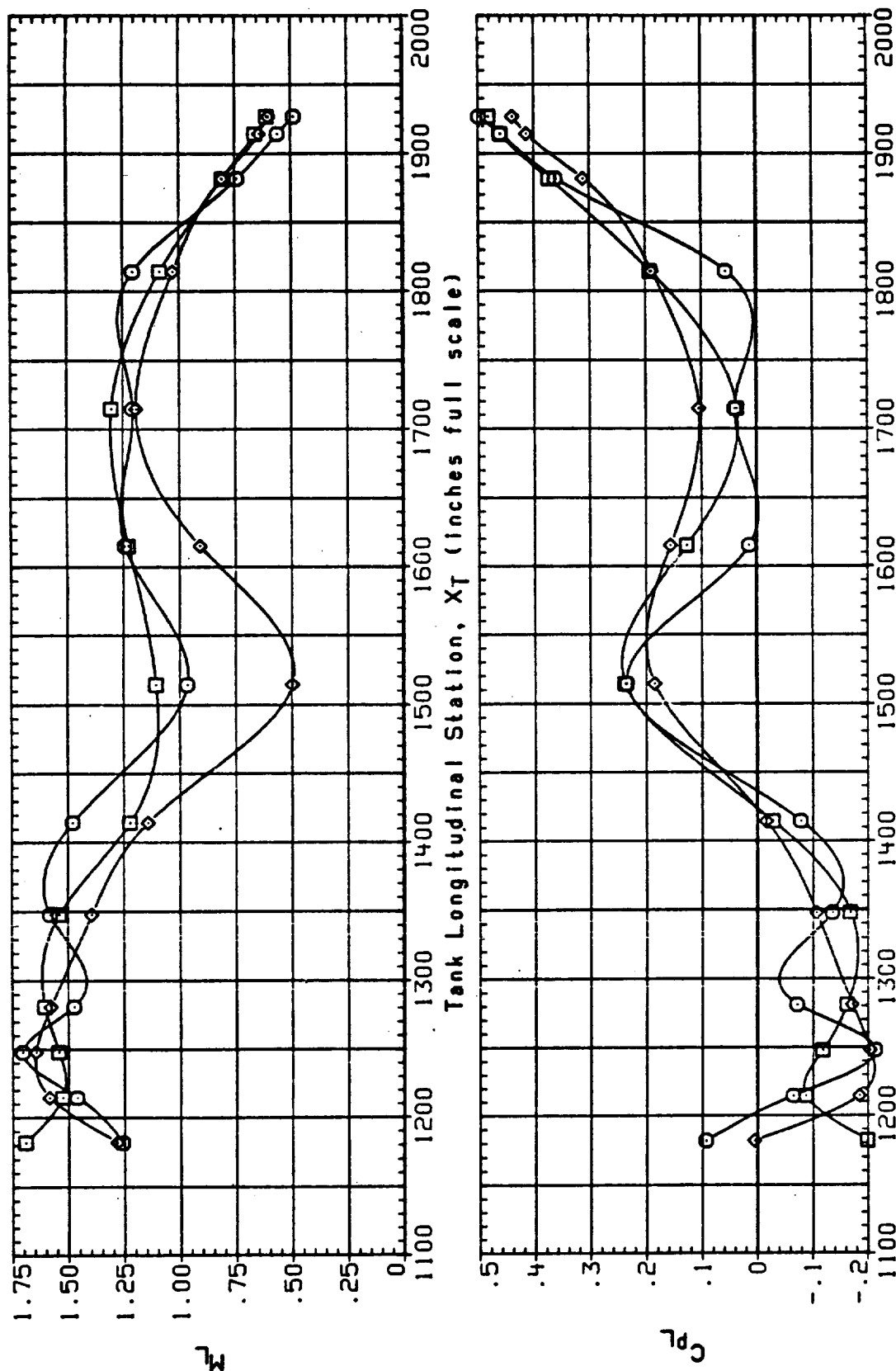


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT
VERSUS TANK STATION

(A) ALPHA = -.50

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	1B-ELV	OB-ELV
E3V161	IA1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.550	10.000	-5.000
E3V261	IA1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.550	10.000	-5.000
E3V361	IA1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.550	10.000	-5.000

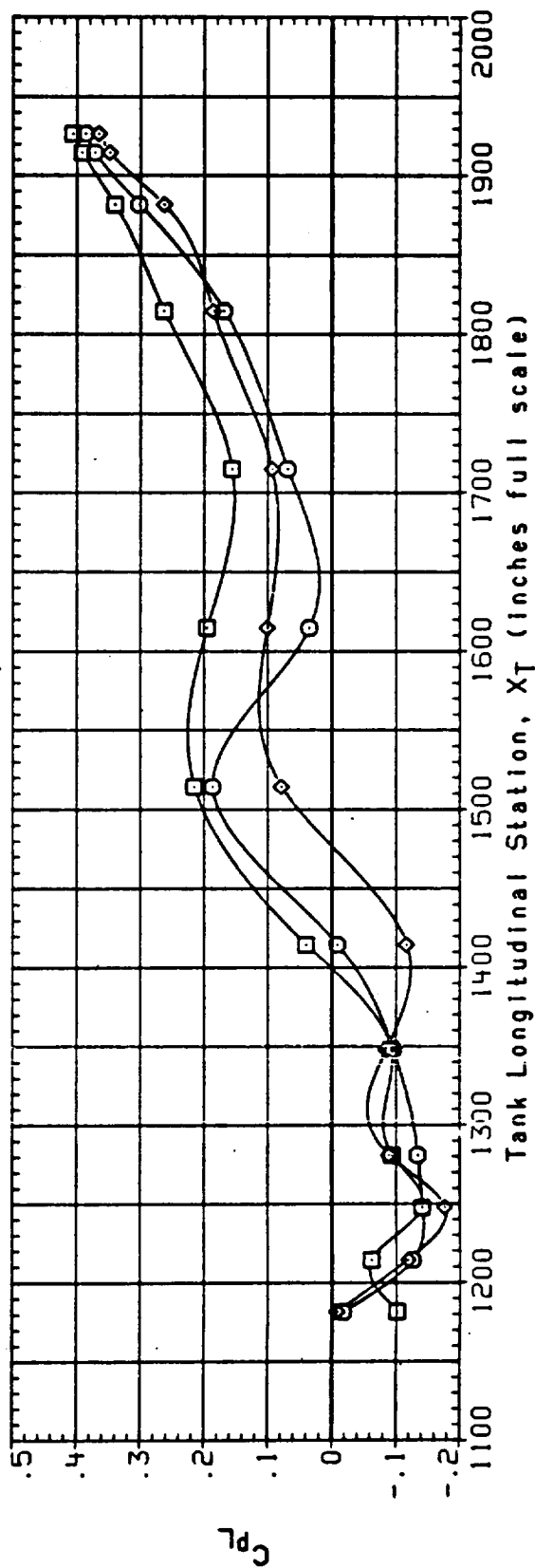
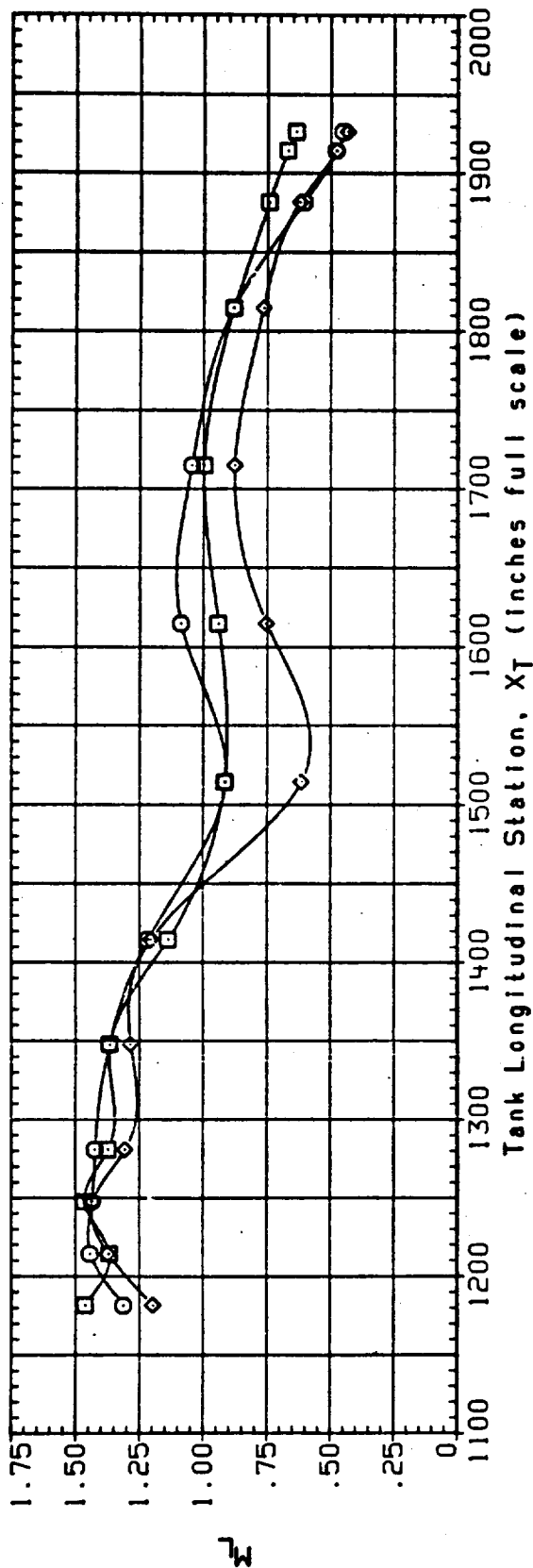


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) ALPHA = -.50

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	1B-ELV	OB-ELV
E3V162	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	1.550	10.000	-5.000
E3V262	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	1.550	10.000	-5.000
E3V362	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	1.550	10.000	-5.000

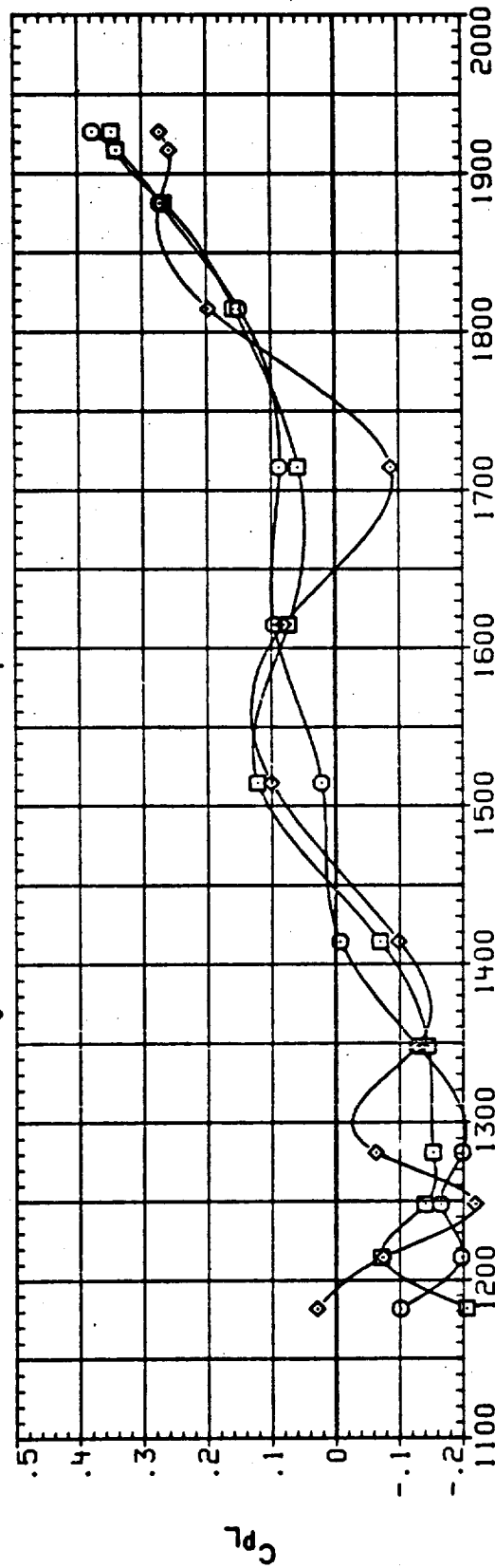
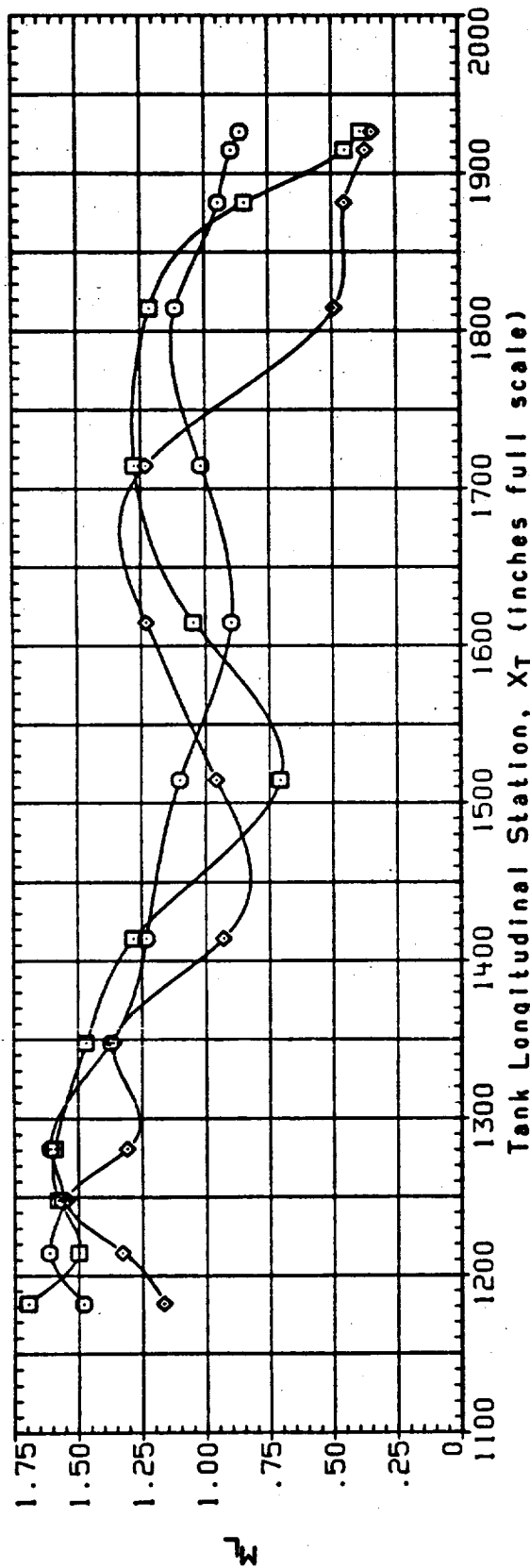


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) ALPHA = -0.50

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
E3V163	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	2.000	10.000	-5.000
E3V263	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	2.000	10.000	-5.000
E3V363	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	2.000	10.000	-5.000

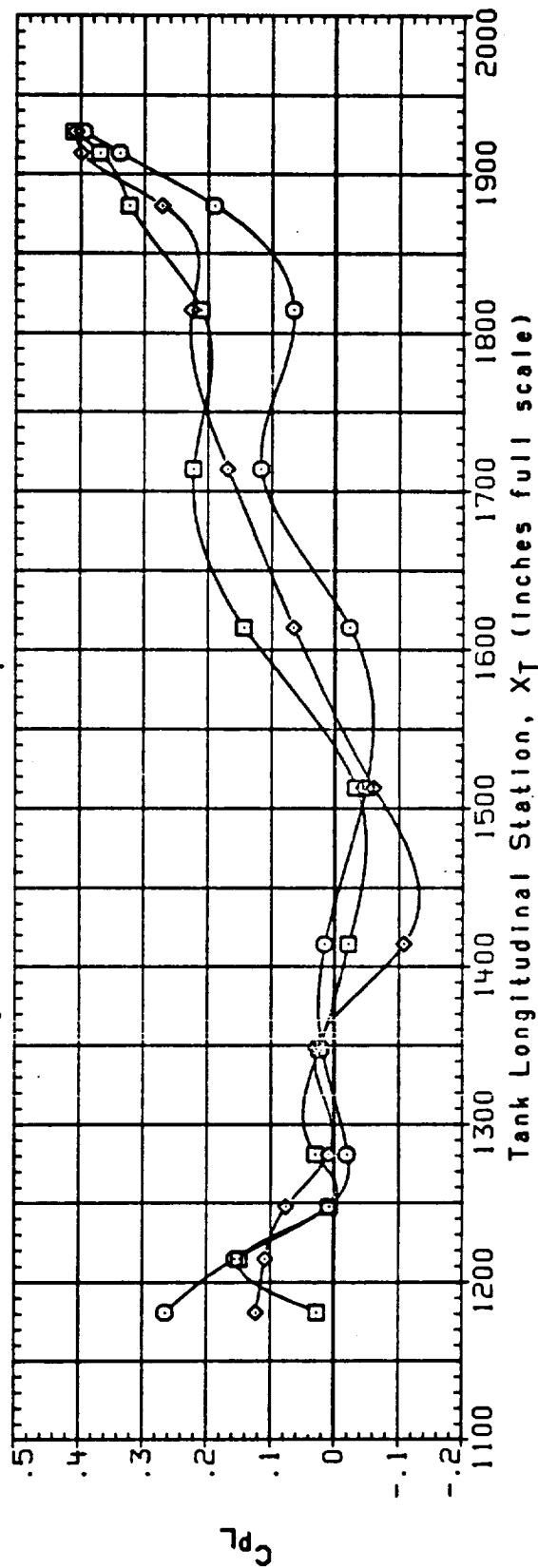
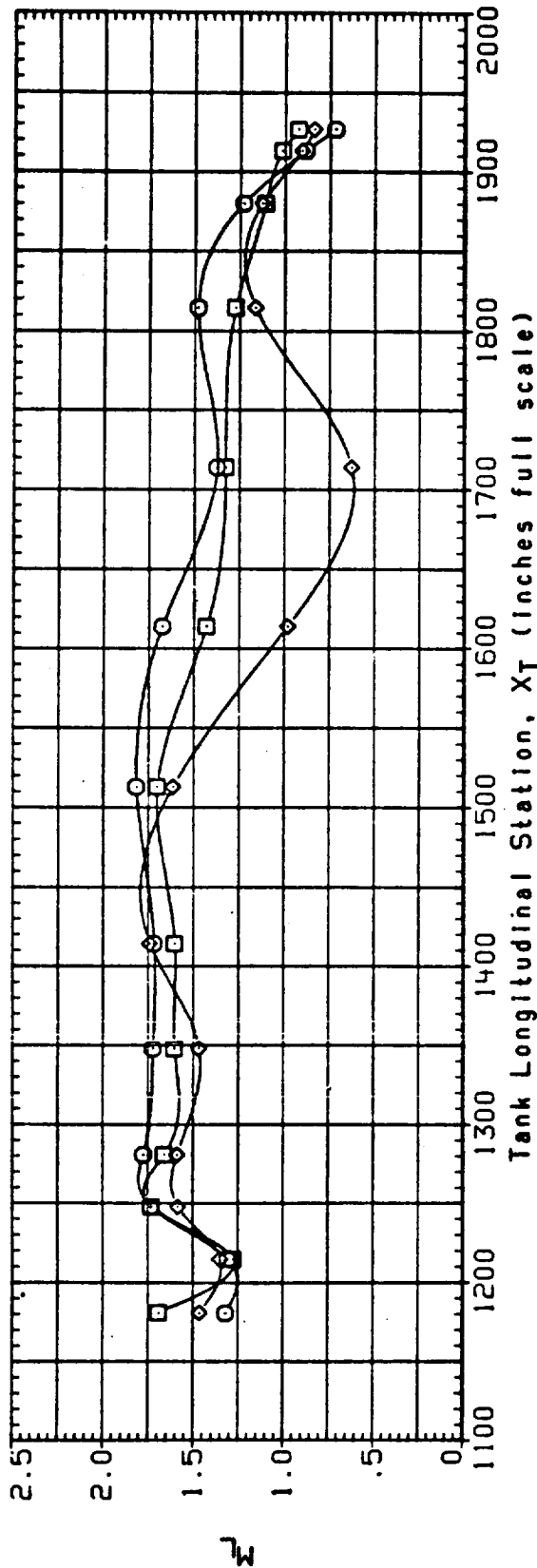


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	THETAP	BETA	MACH	1B-ELV	OB-ELV
E3V164	○	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	2.000	10.000	-5.000
E3V264	□	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	2.000	10.000	-5.000
E3V364	◇	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	2.000	10.000	-5.000

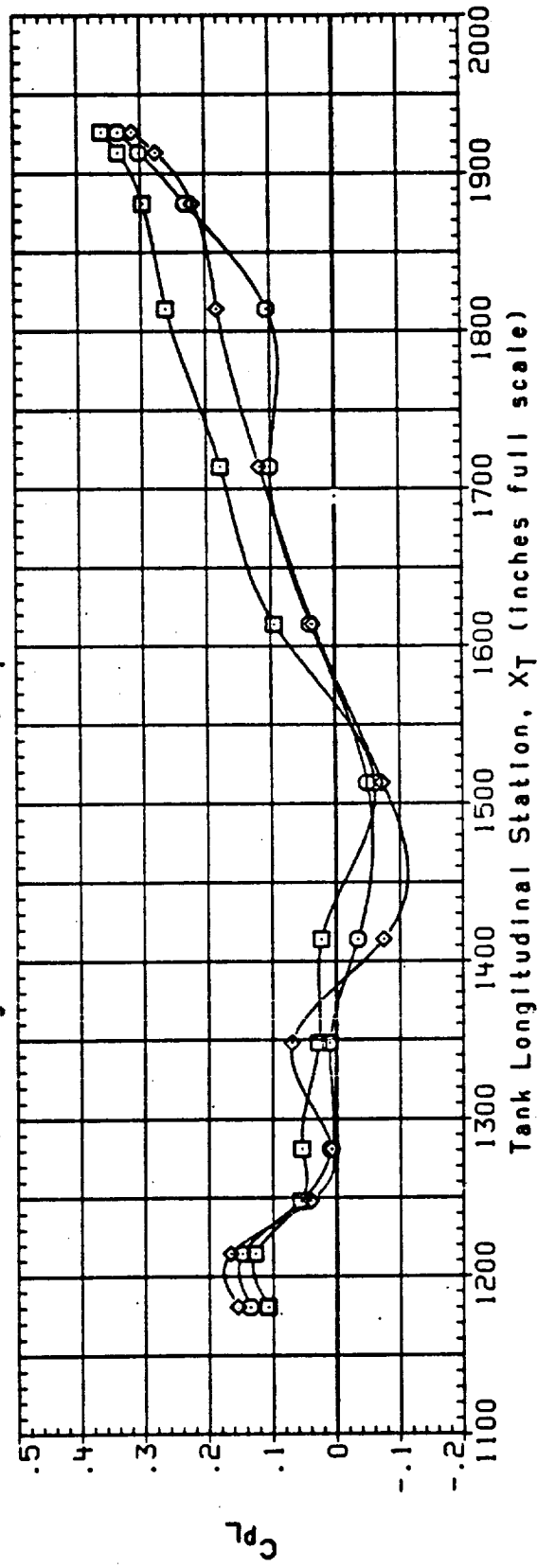
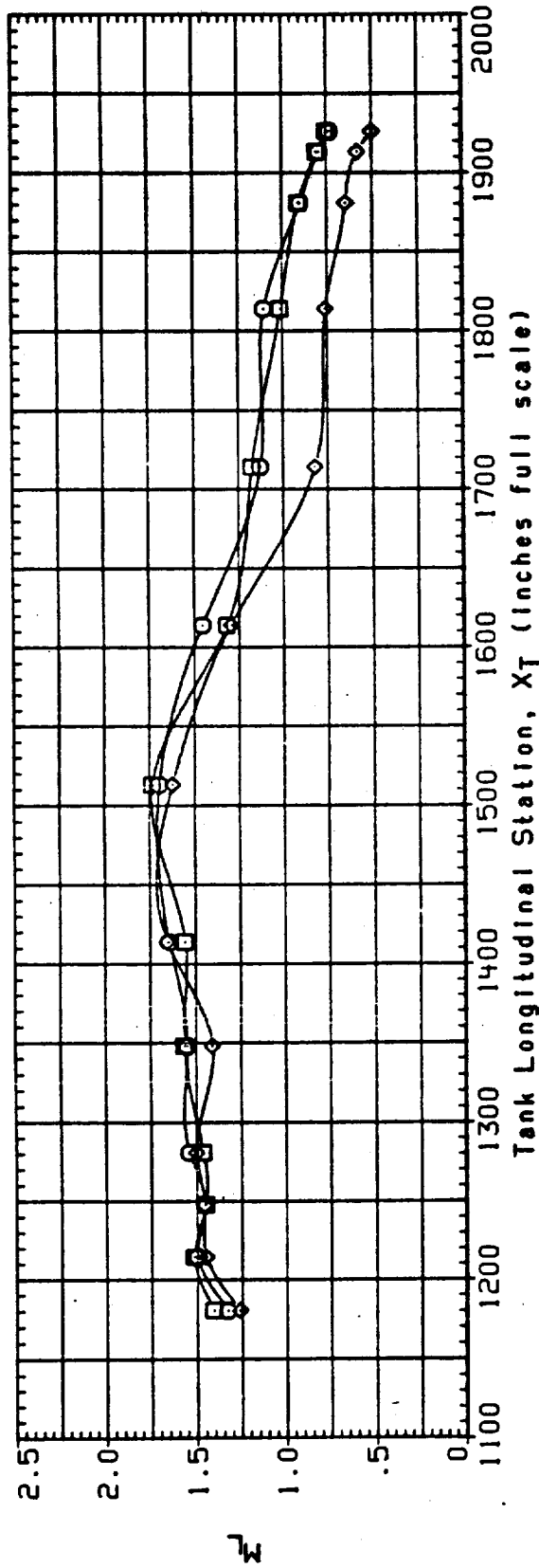


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT
VERSUS TANK STATION

(A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
E3V165	1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	2.000	10.000	-5.000
E3V265	1A190B, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	2.000	10.000	-5.000
E3V365	1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	2.000	10.000	-5.000

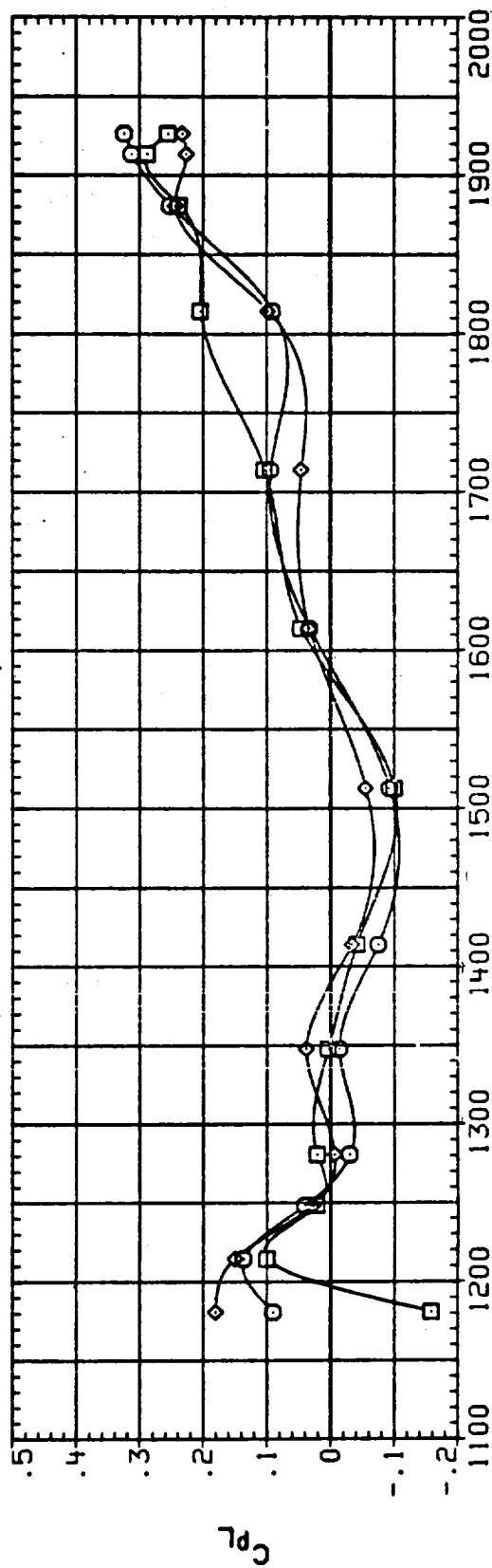
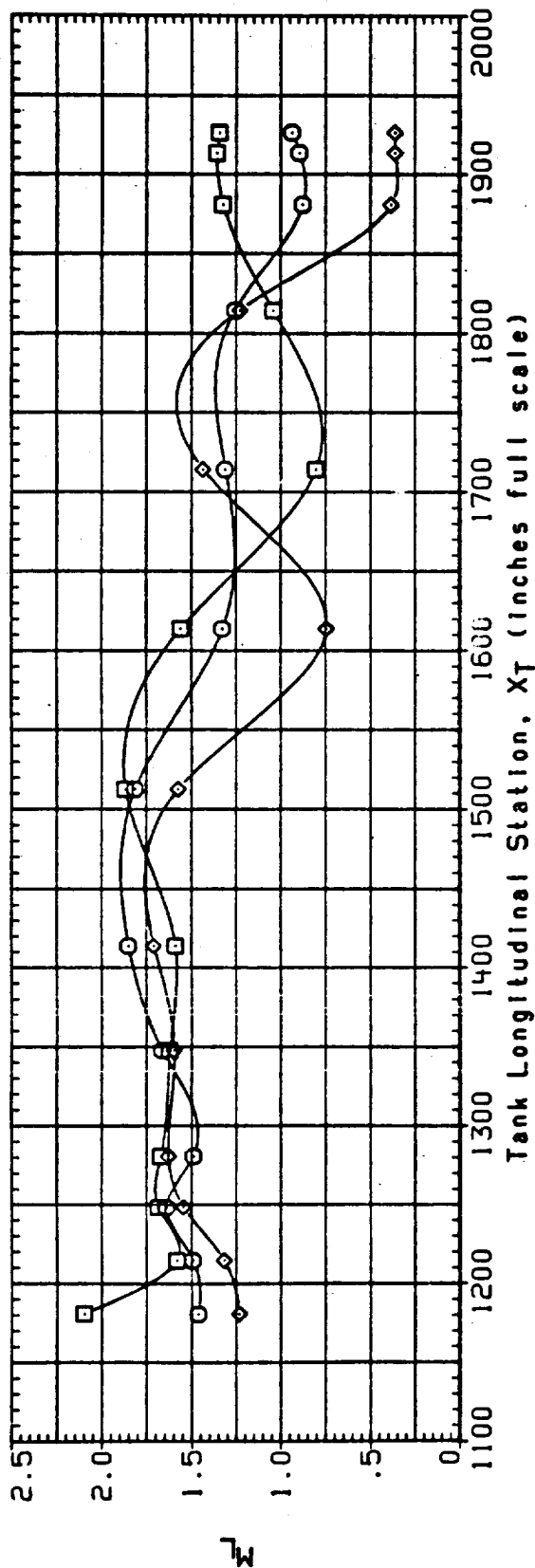


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	1B-ELV	0B-ELV
E3V166	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	2.500	10.000	-5.000
E3V266	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	2.500	10.000	-5.000
E3V366	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	2.500	10.000	-5.000

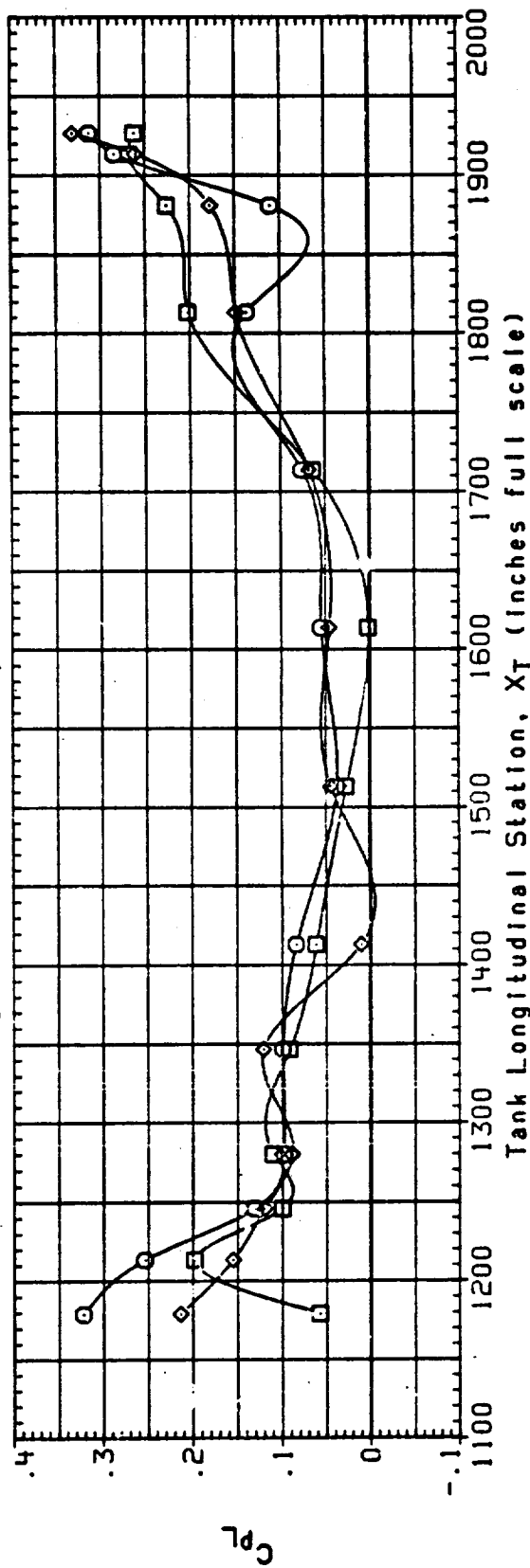
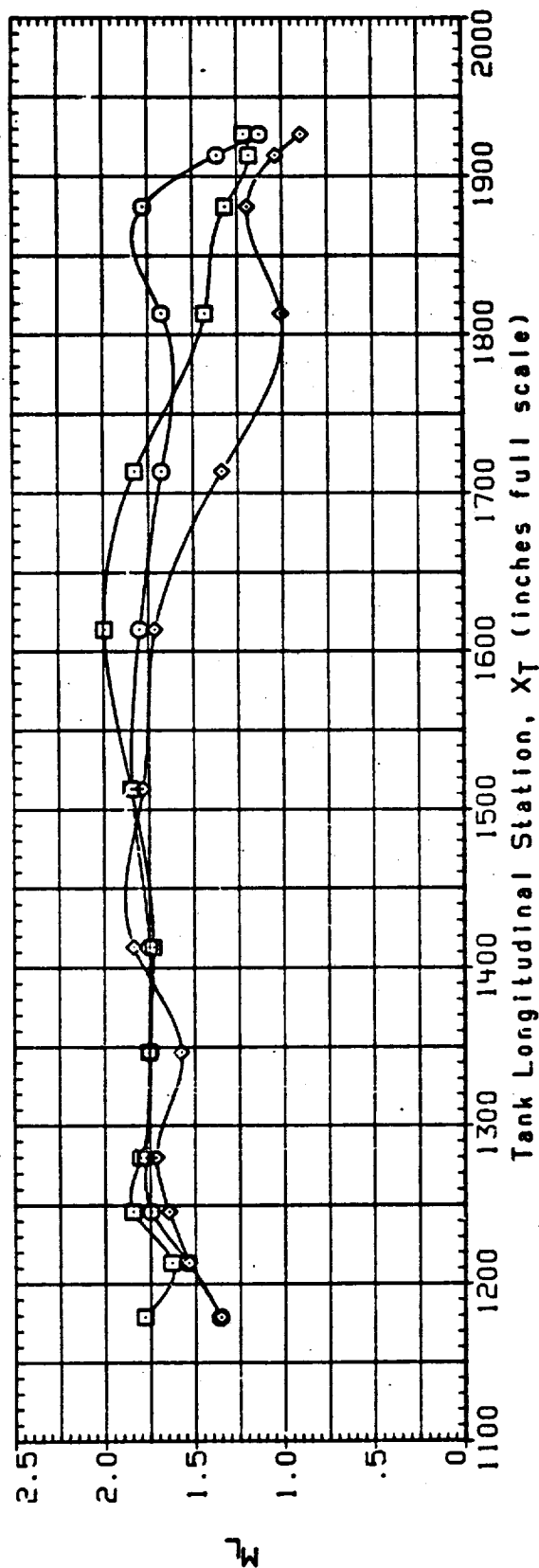


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	1B-ELV	0B-ELV
E3V166	1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	2.500	10.000	-5.000
E3V266	1A190B, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	2.500	10.000	-5.000
E3V366	1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	2.500	10.000	-5.000

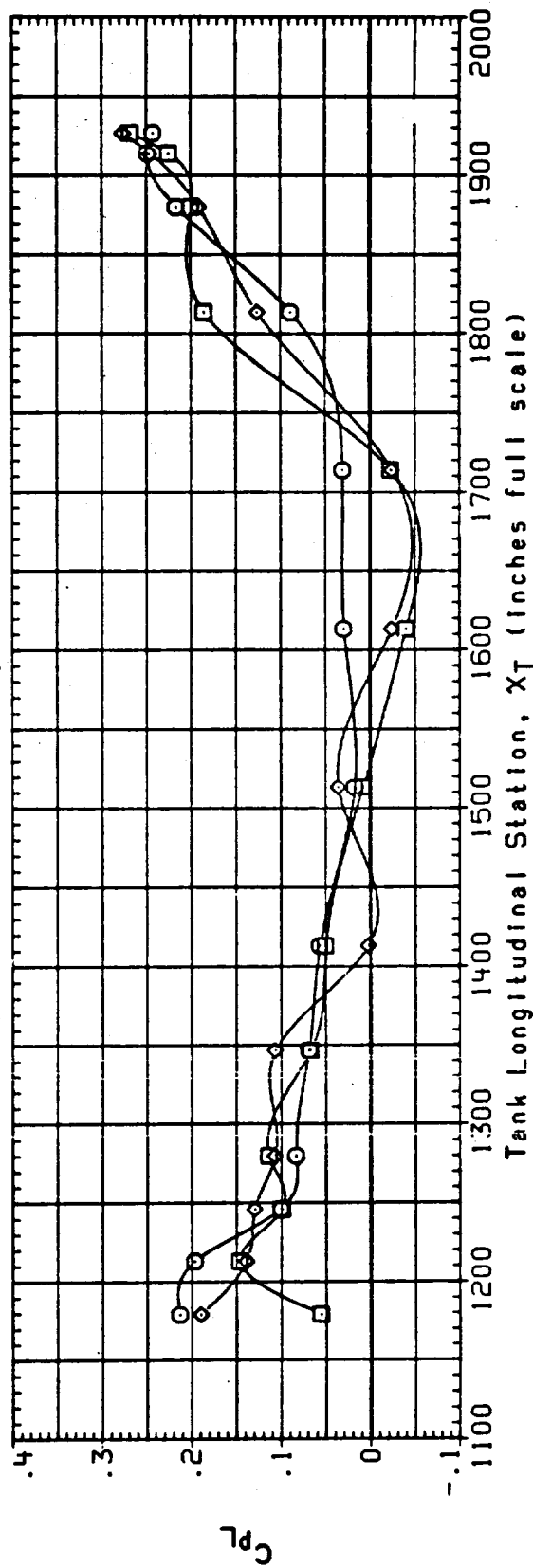
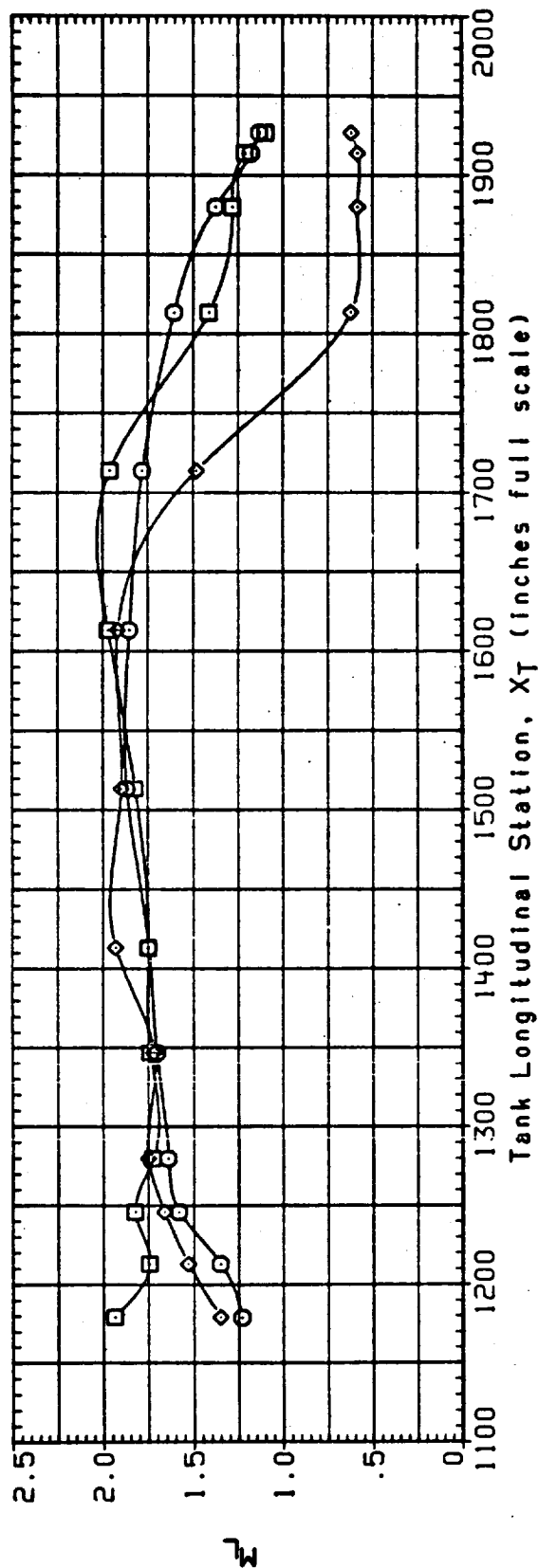


FIGURE 20. ET PRCBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
E3V166	IA1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	2.500	10.000	-5.000
E3V266	IA1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	2.500	10.000	-5.000
E3V366	IA1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	2.500	10.000	-5.000

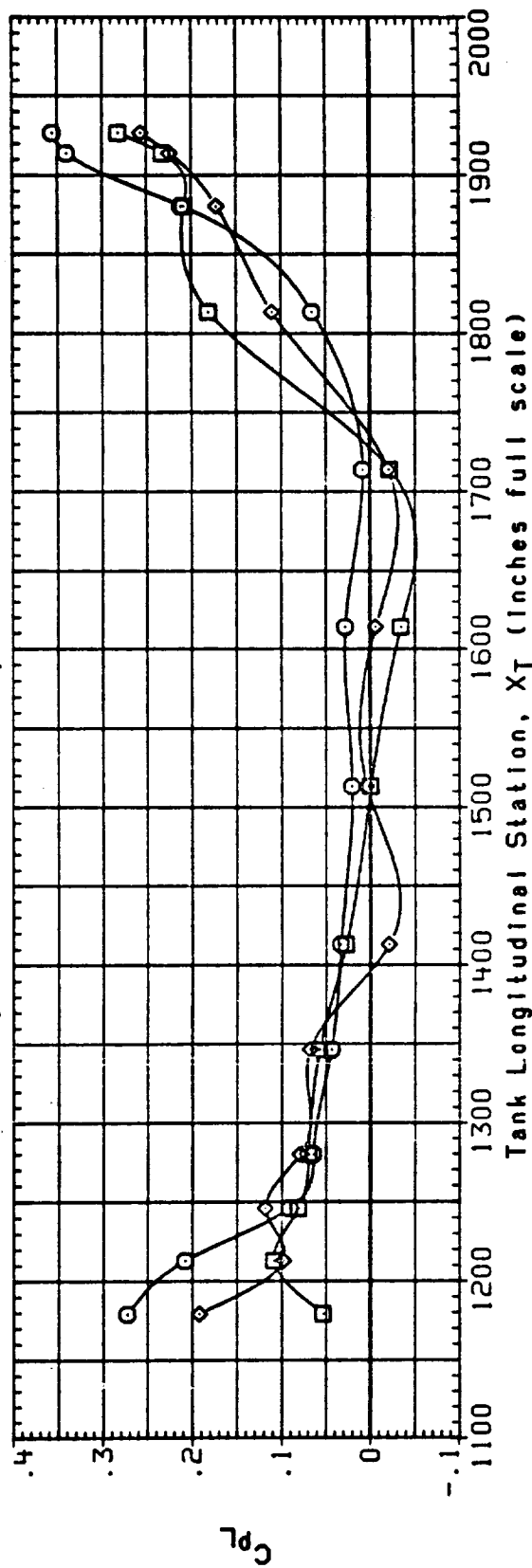
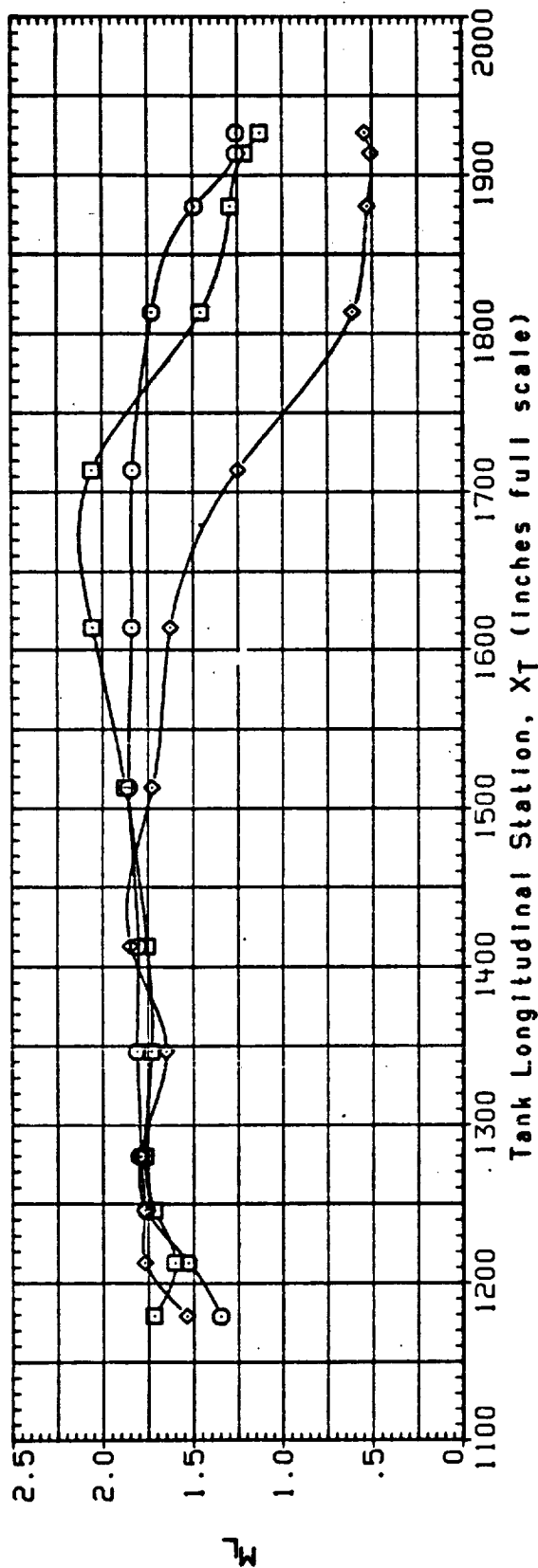


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	18-ELV	08-ELV
E3V167	1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	2.500	10.000	-5.000
E3V267	1A190B, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	2.500	10.000	-5.000
E3V367	1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	2.500	10.000	-5.000

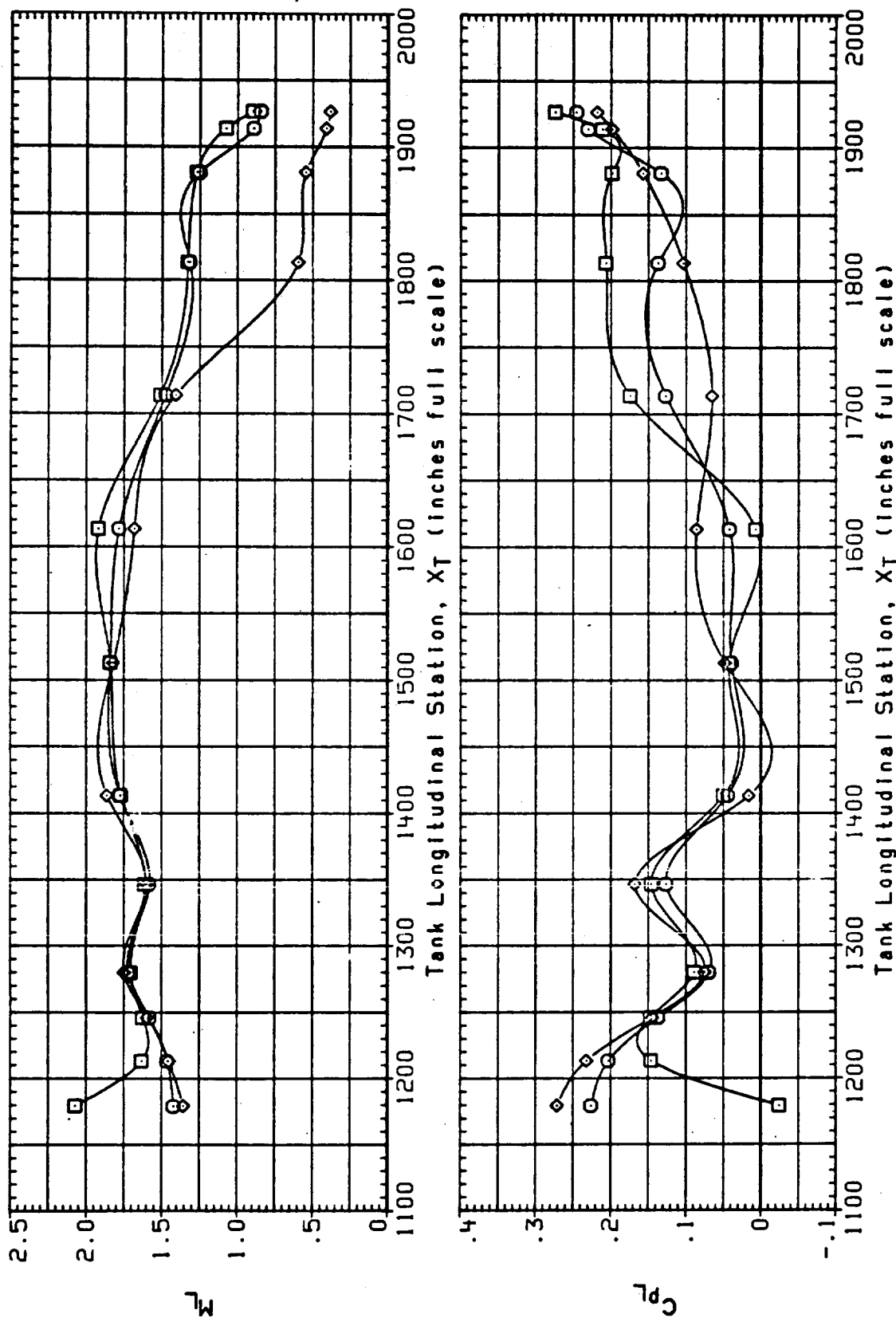


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) ALPHA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETA	BETA	MACH	IB-ELV	OB-ELV
E3V167	1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	2.500	10.000	-5.000
E3V267	1A190B, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	2.500	10.000	-5.000
E3V367	1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	2.500	10.000	-5.000

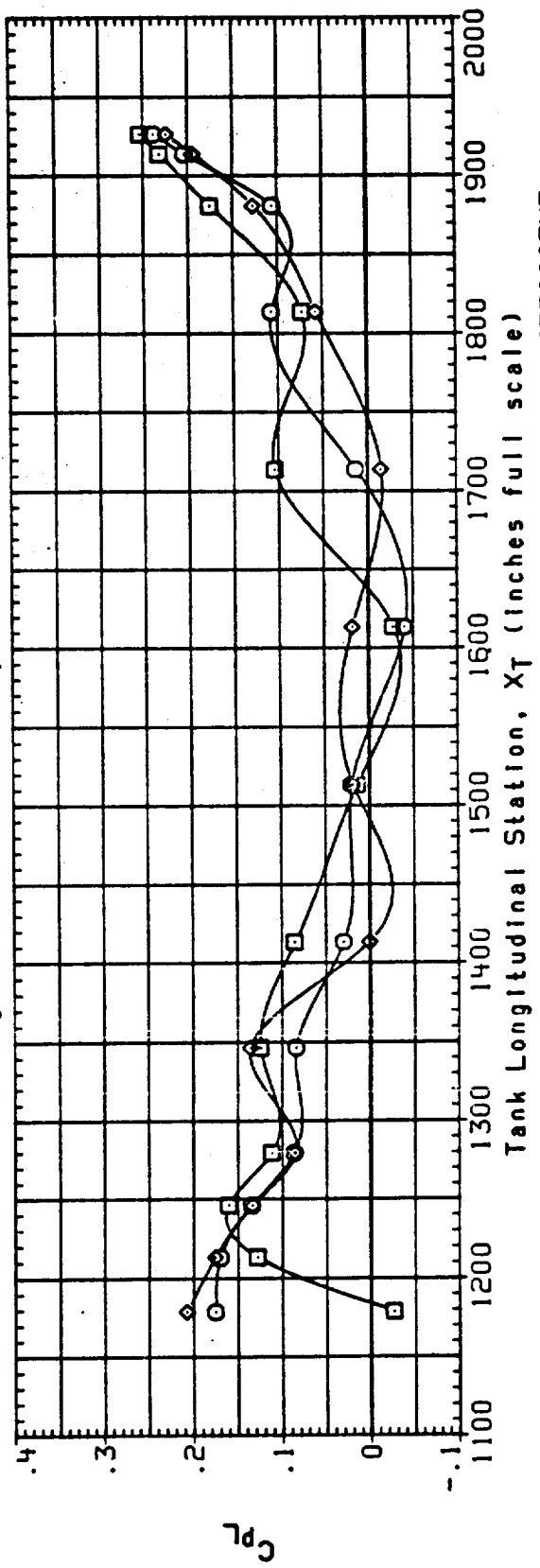
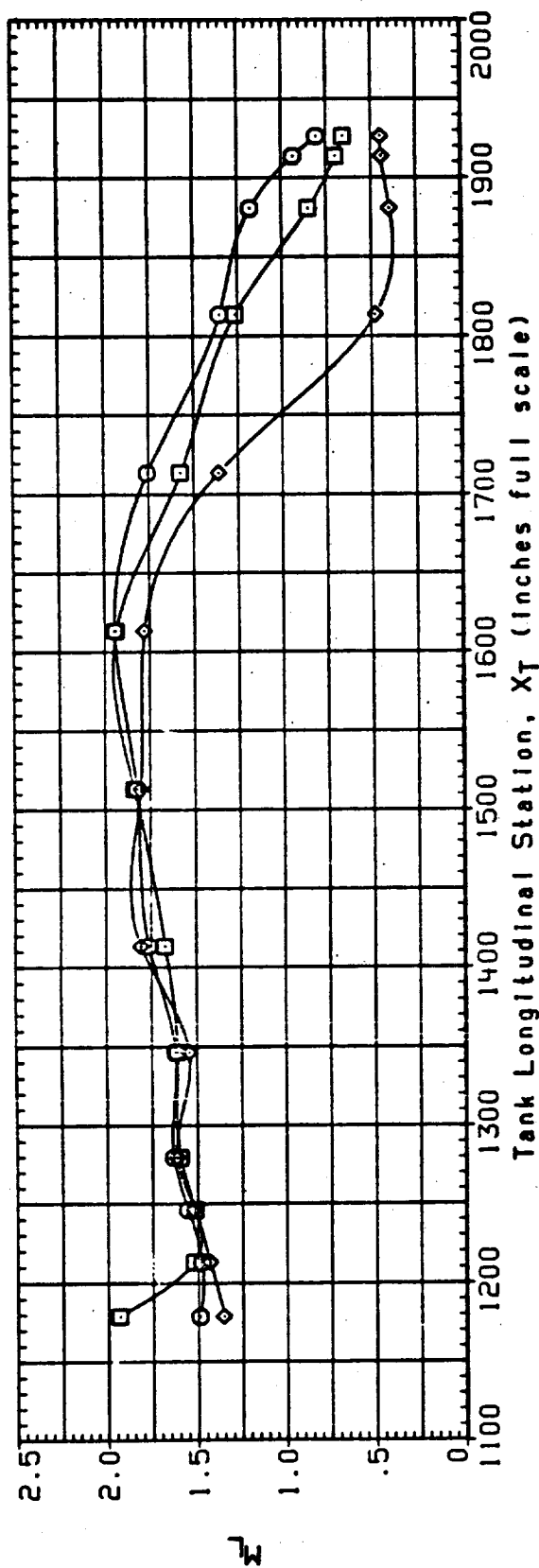


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
E3V167	○	IA1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	2.500	10.000	-5.000
E3V267	□	IA1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	2.500	10.000	-5.000
E3V367	◇	IA1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	2.500	10.000	-5.000

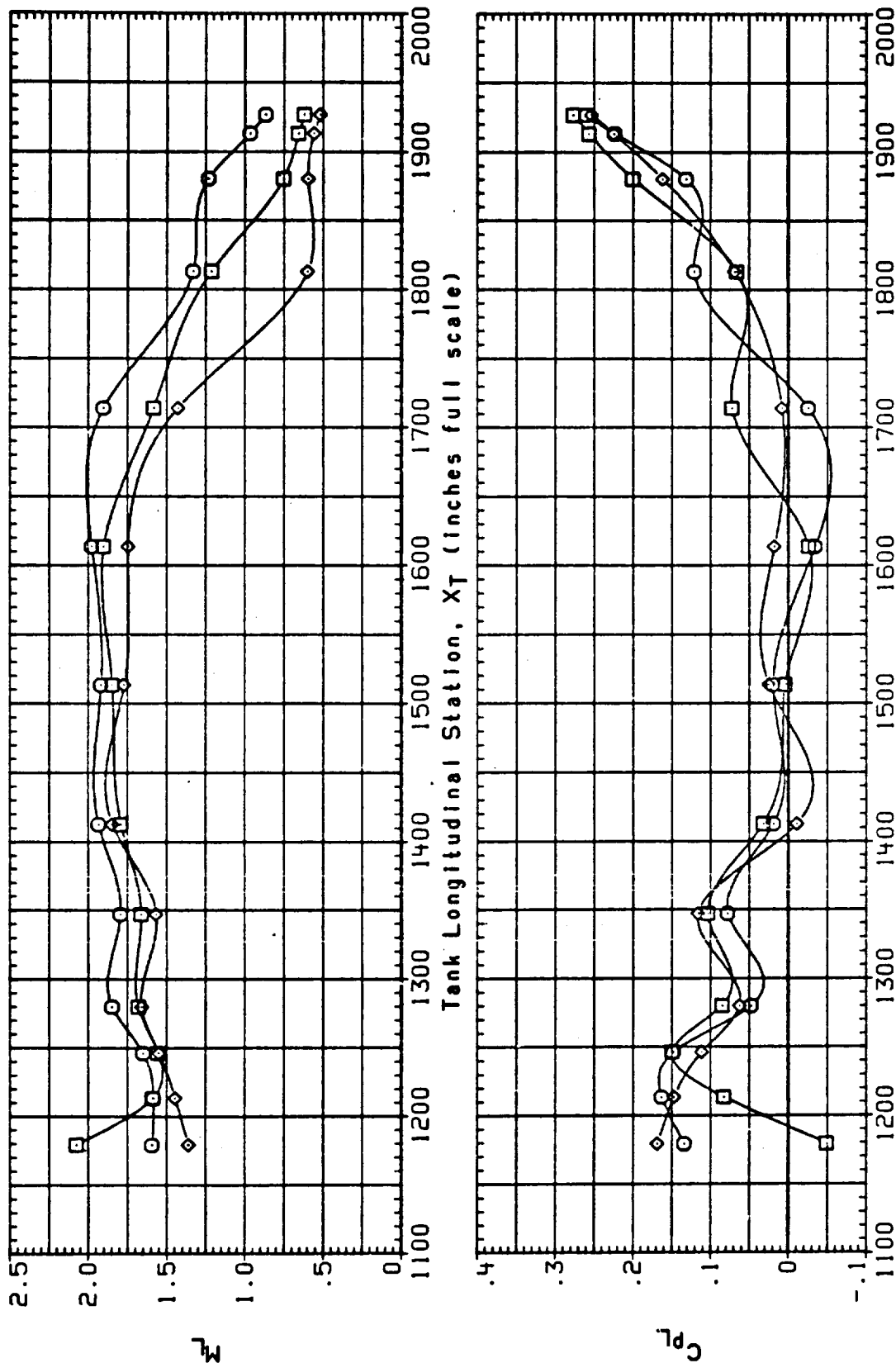


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	18-ELV	08-ELV
E3V168	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	2.500	10.000	-5.000
E3V268	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	2.500	10.000	-5.000
E3V368	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	2.500	10.000	-5.000

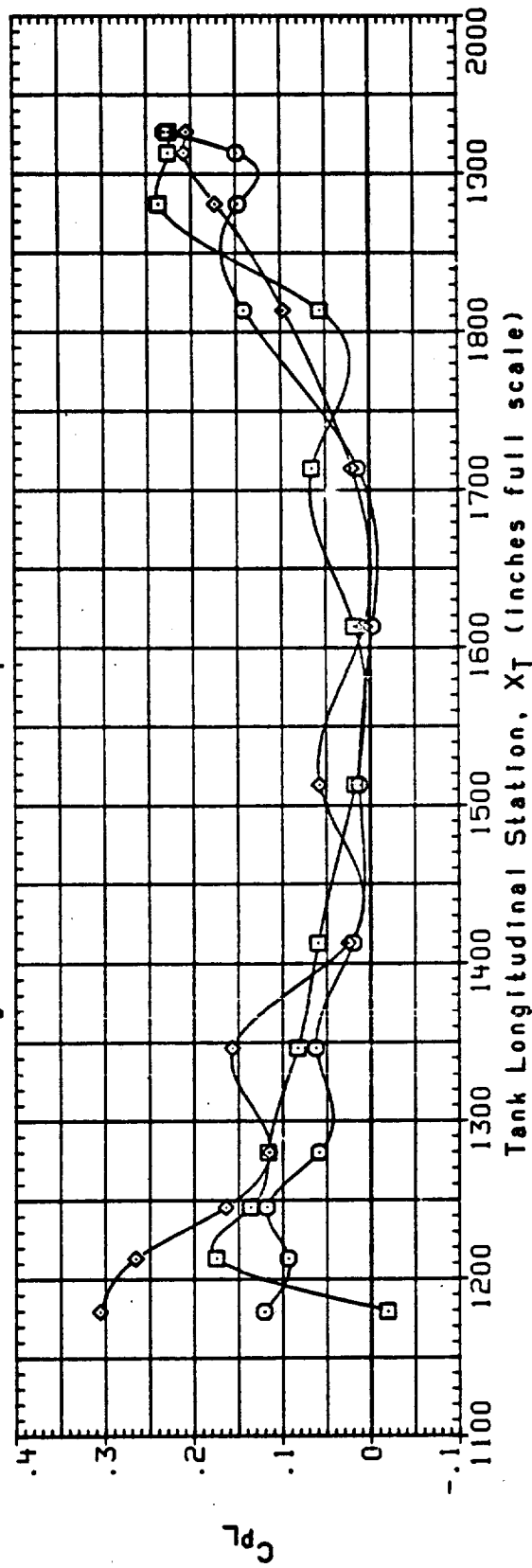
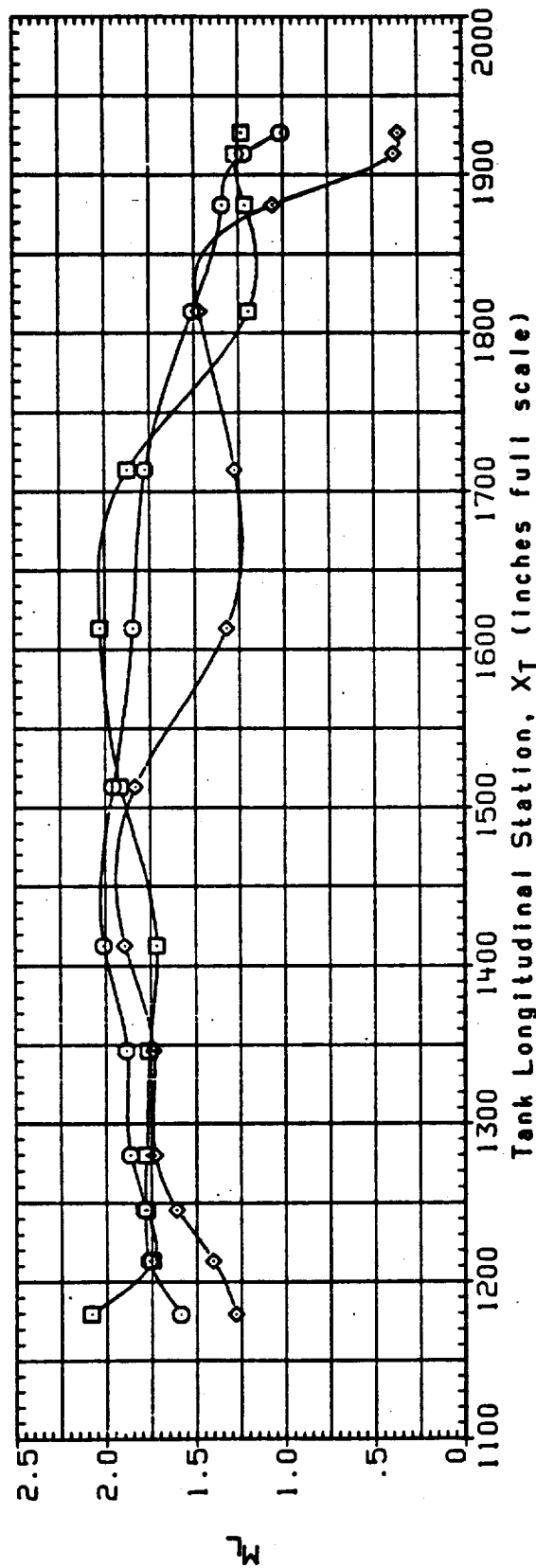


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(A) ALPHA = -4.00

DATA SET SYMBOL		CONFIGURATION			THETAP	BETA	MACH	1B-ELV	OB-ELV
E3V168	○	1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)			195.000	4.000	2.500	10.000	-5.000
E3V268	□	1A190B, OTS, MID TRAVERSING PROBE (PROBE # 46)			180.000	4.000	2.500	10.000	-5.000
E3V368	◇	1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)			165.000	4.000	2.500	10.000	-5.000

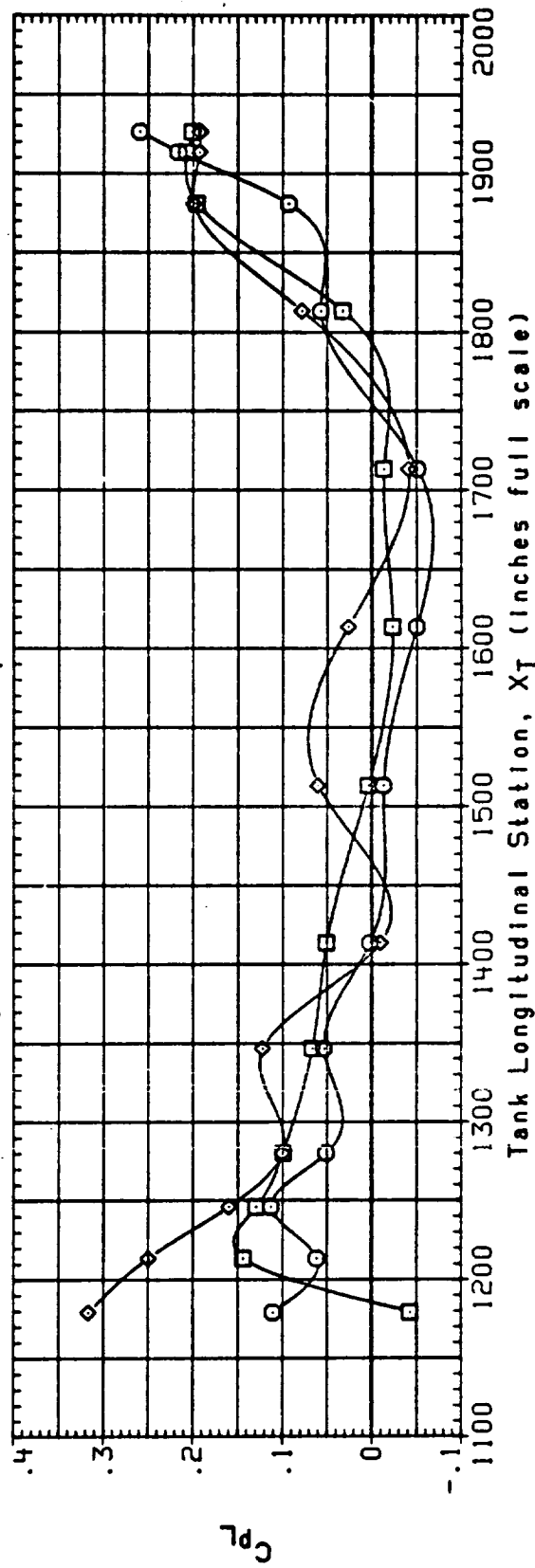
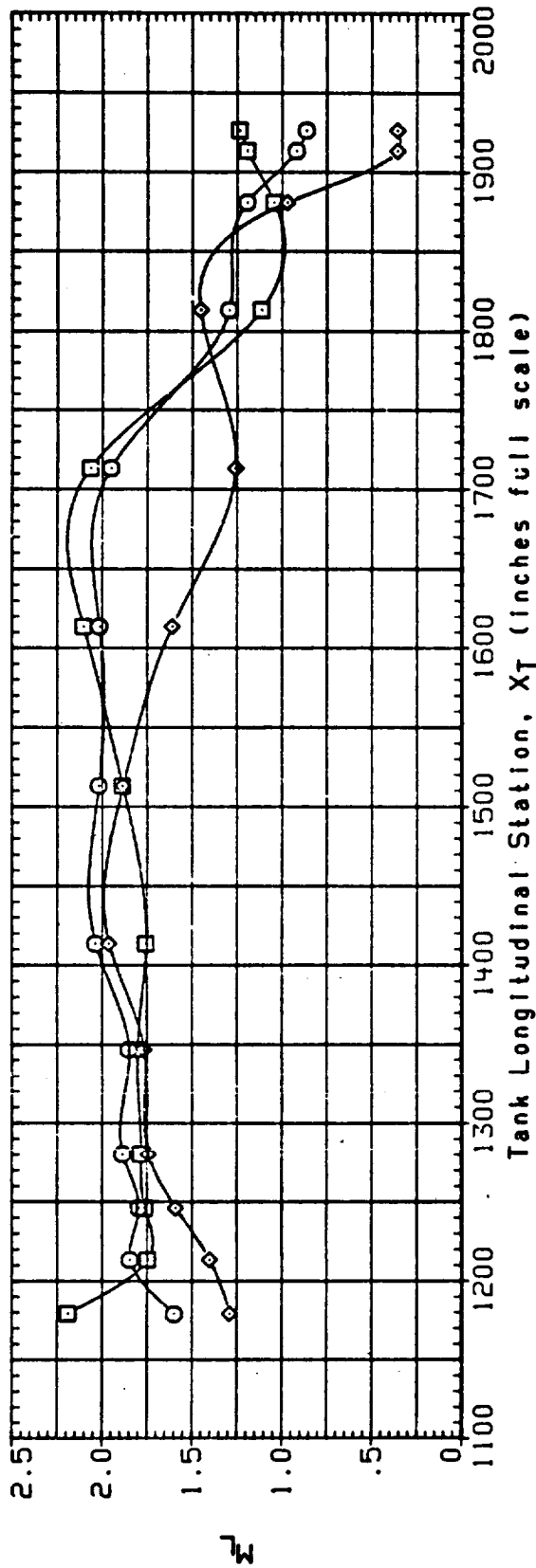


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(B) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
E3V168	○	IA1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	2.500	10.000	-5.000
E3V268	□	IA1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	2.500	10.000	-5.000
E3V368	◇	IA1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	2.500	10.000	-5.000

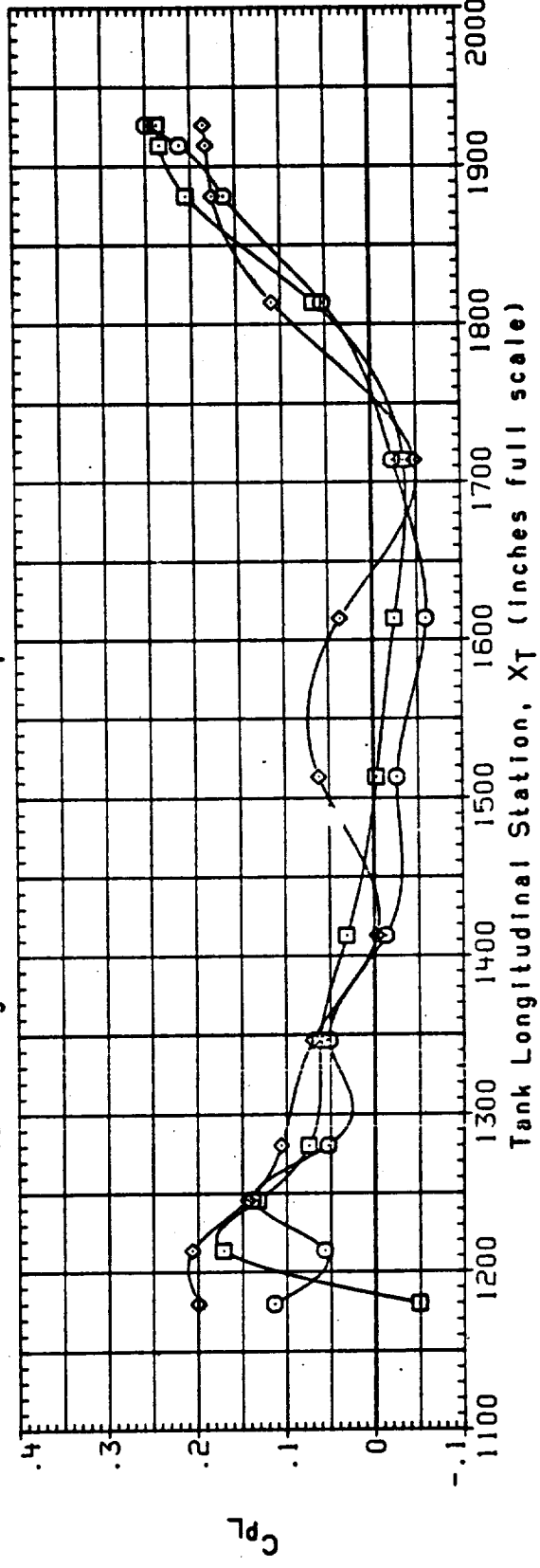
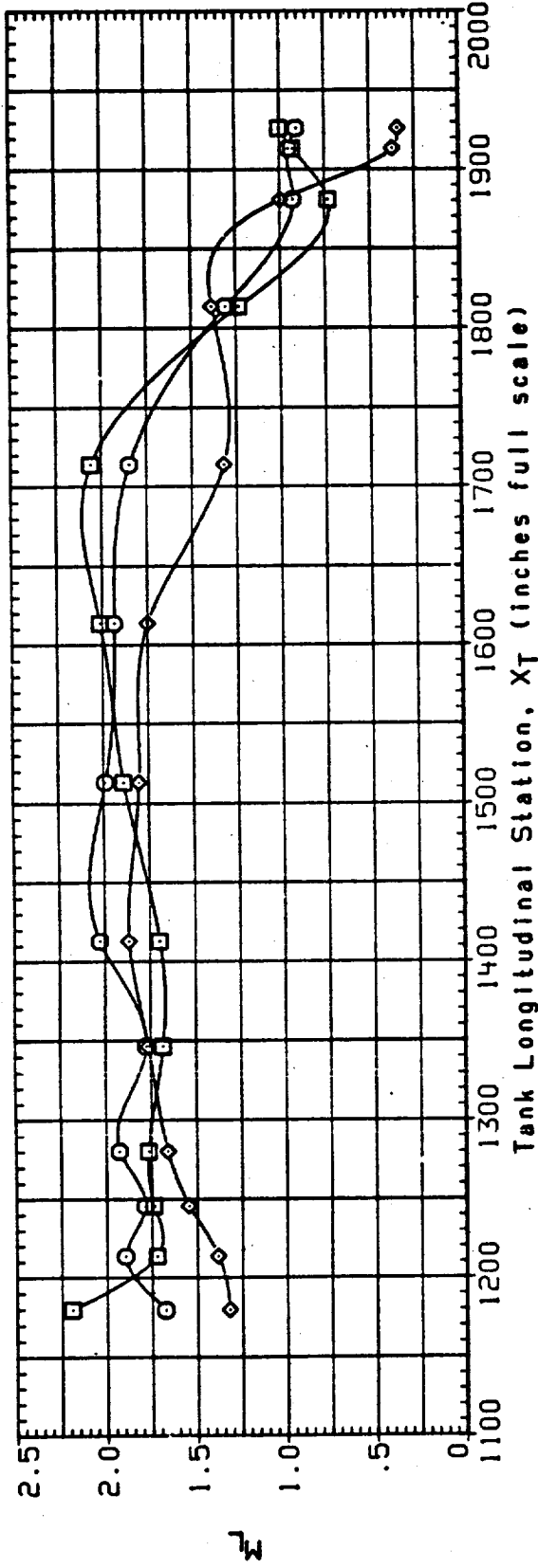


FIGURE 20. ET PROBE SURVEY - LOCAL MACH NUMBER AND PRESSURE COEFFICIENT VERSUS TANK STATION

(C) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U152	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	.600	10.000	.000
F3U252	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	.600	10.000	.000
F3U352	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	.600	10.000	.000

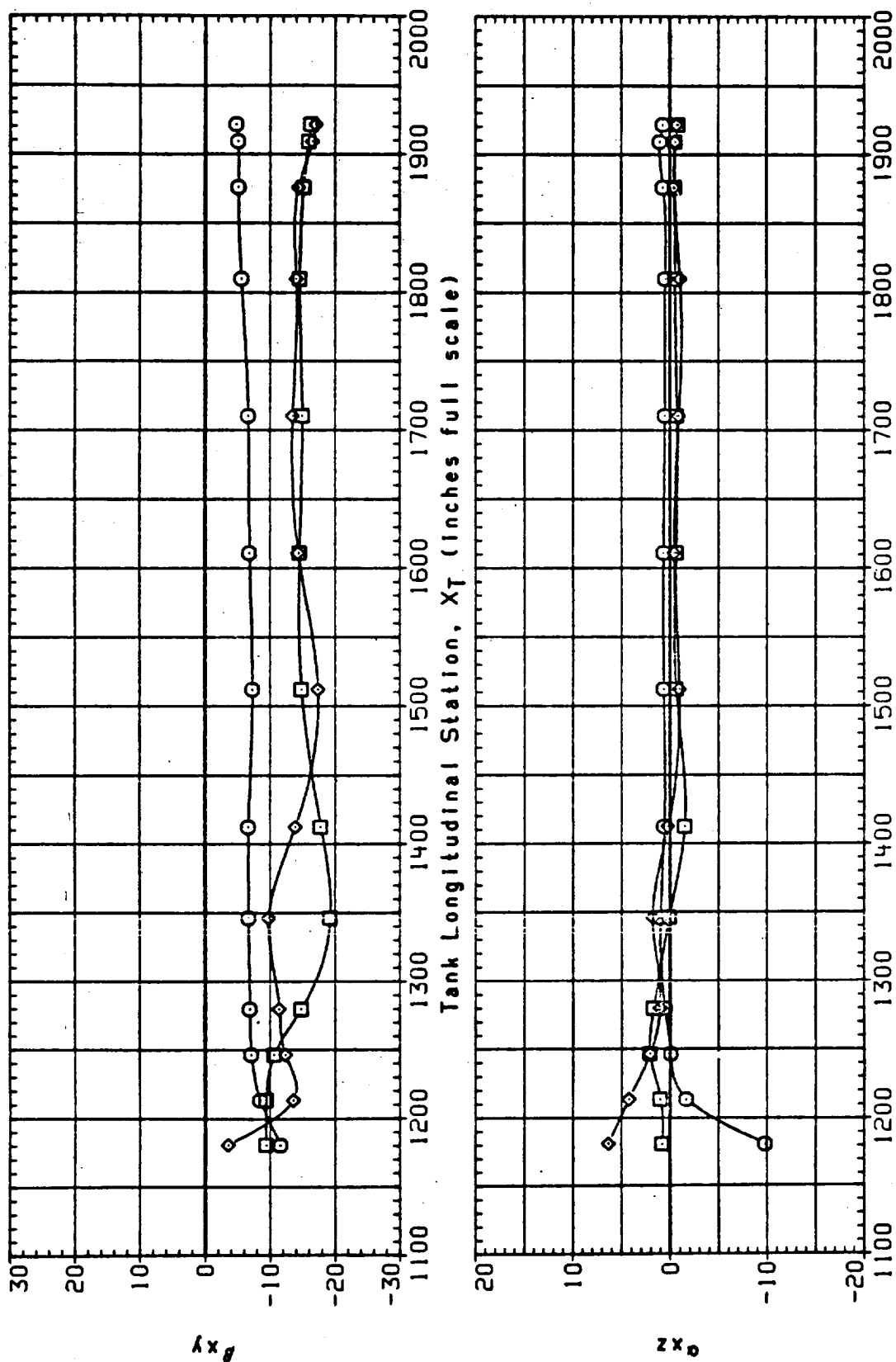


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U152	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	.600	10.000	.000
F3U232	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	.600	10.000	.000
F3U352	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	.600	10.000	.000

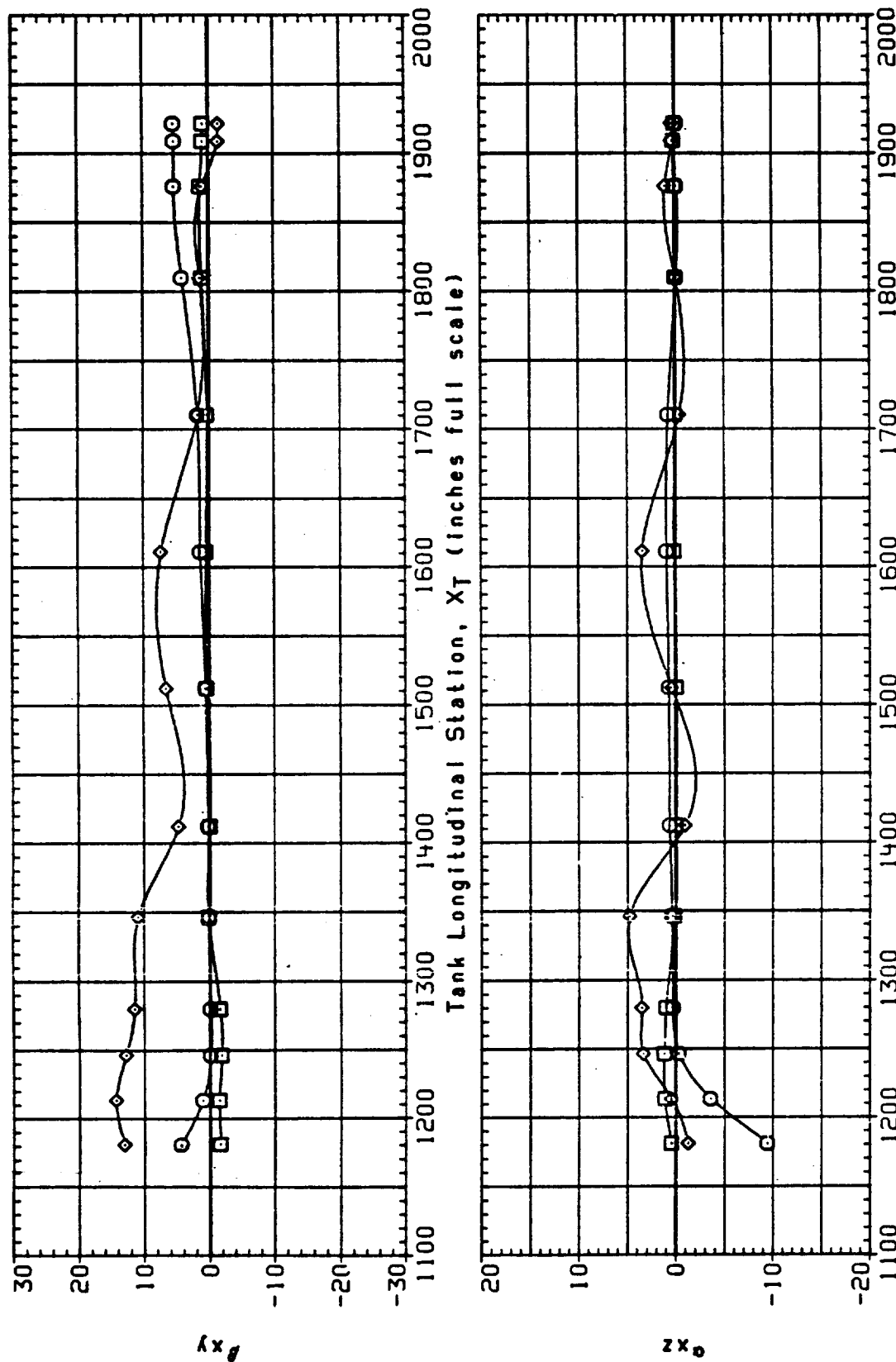


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL		CONFIGURATION		THETAP	ALPHA	MACH	1B-ELV	OB-ELV
F3U152	○	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	.600	10.000	.000	
F3U252	□	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	.600	10.000	.000	
F3U352	◇	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	.600	10.000	.000	

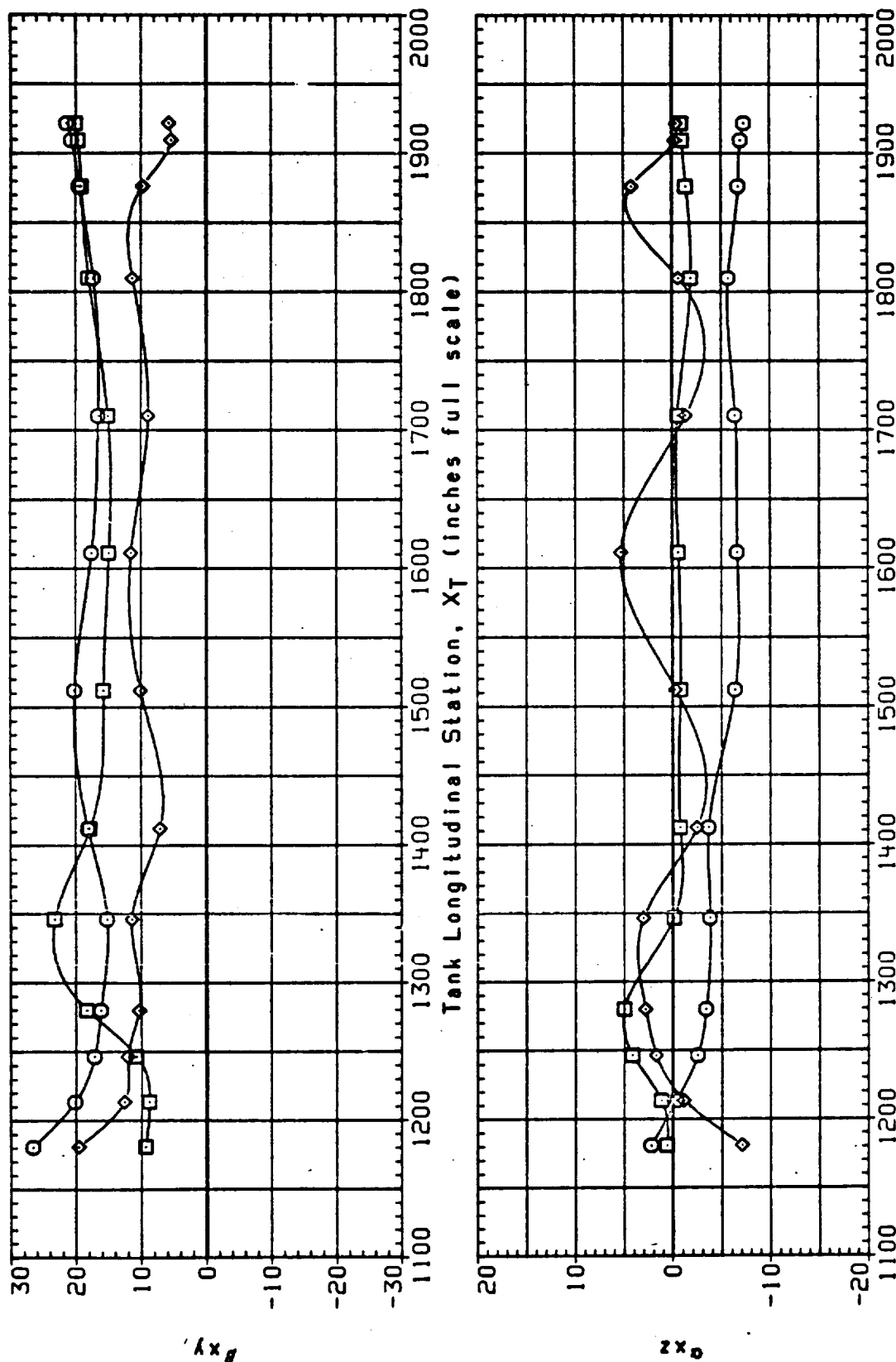


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(C)BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U153	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.600	10.000	.000
F3U253	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.600	10.000	.000
F3U353	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.600	10.000	.000

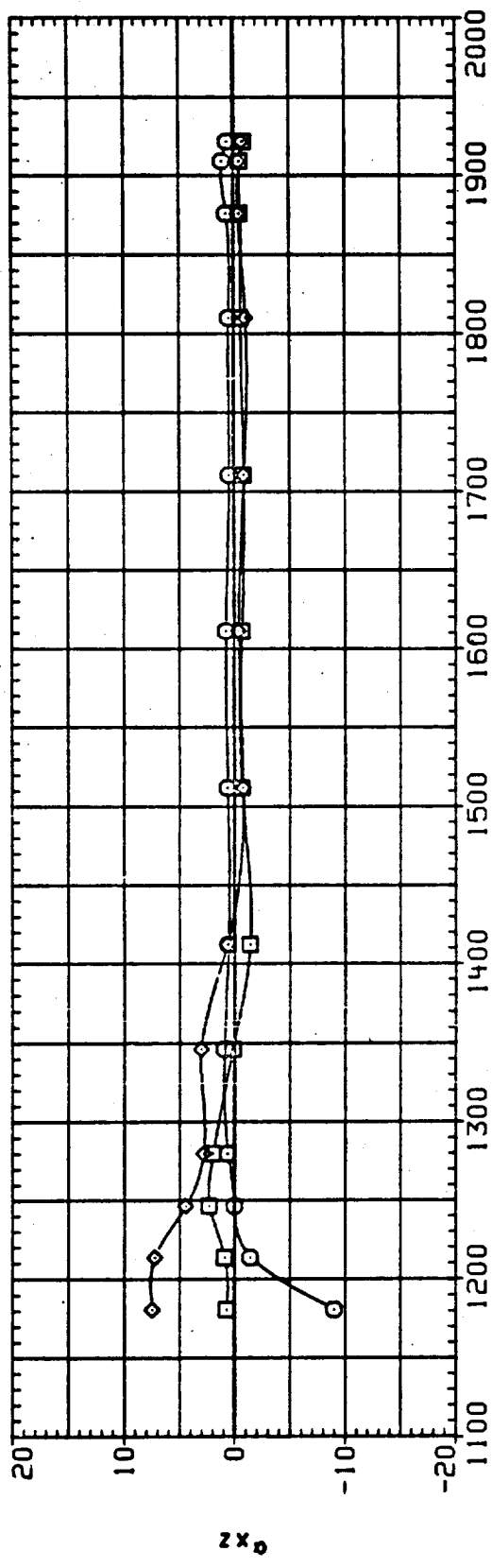
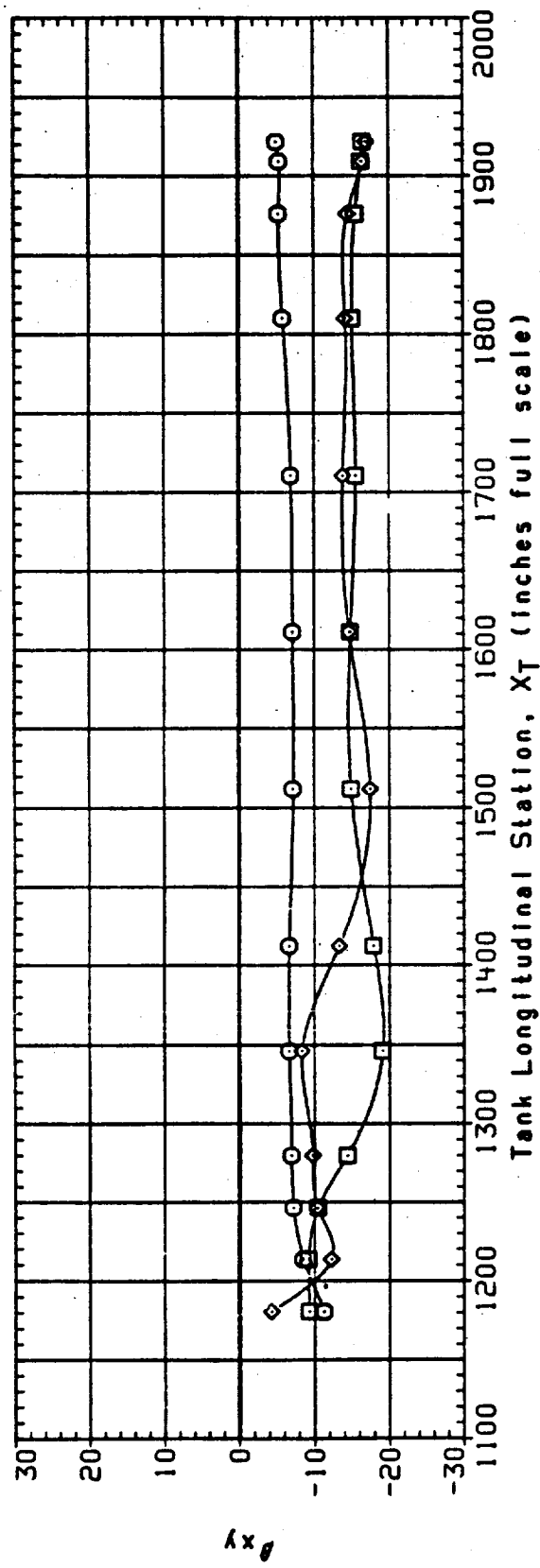


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) RETA = -4.00

DATA SET SYMBOL	CONFIGURATION	TH-ETAP	ALPHA	MACH	1B-ELV	0B-ELV
F30153	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.600	10.000	.000
F30253	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.600	10.000	.000
F30353	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.600	10.000	.000

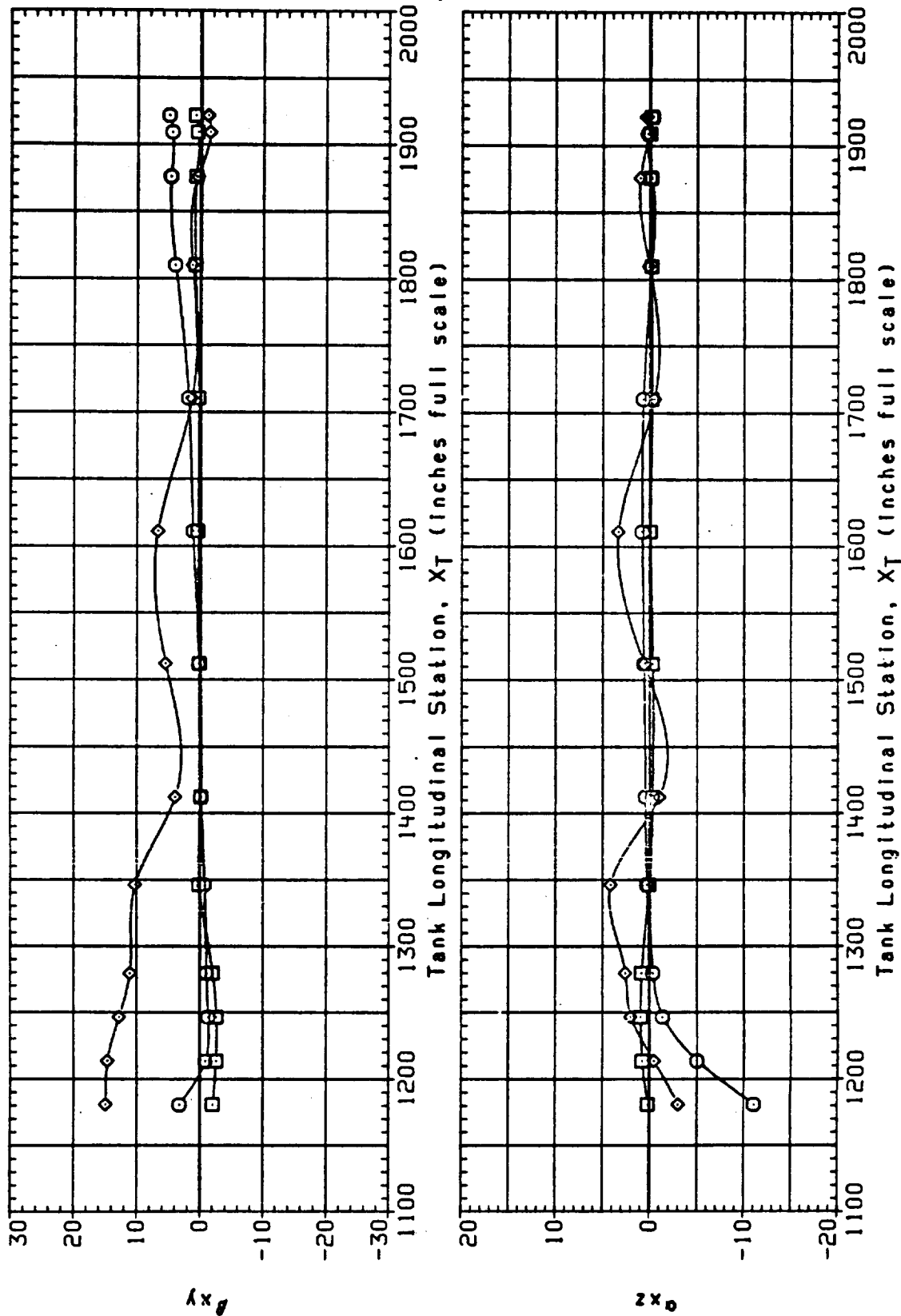


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(B)BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U153	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.600	10.000	.000
F3U253	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.300	.000	.600	10.000	.000
F3U353	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.600	10.000	.000

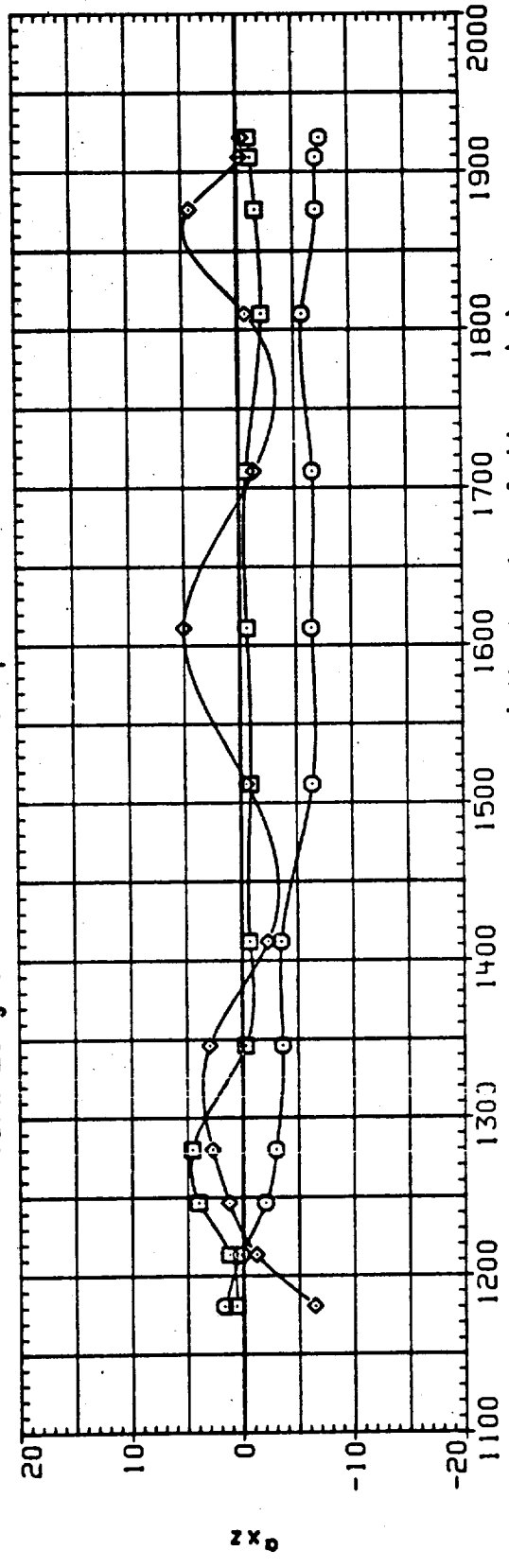
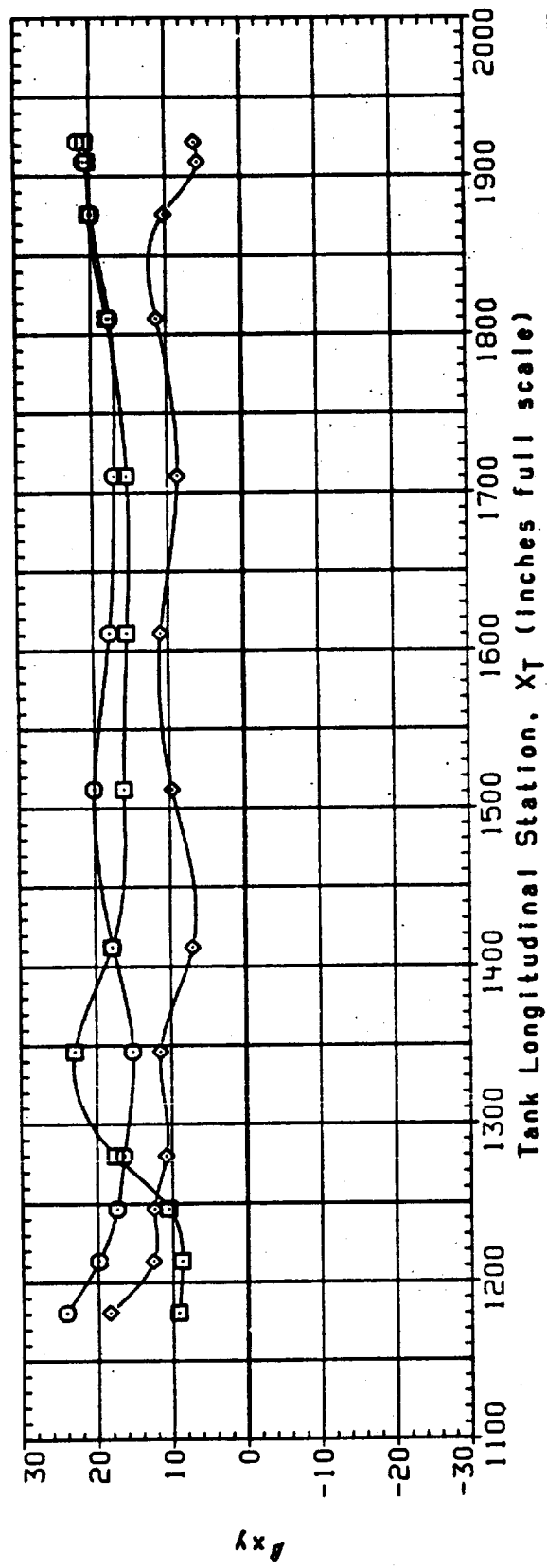


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(C) BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U154	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	.600	10.000	.000
F3U254	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	.600	10.000	.000
F3U354	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	.600	10.000	.000

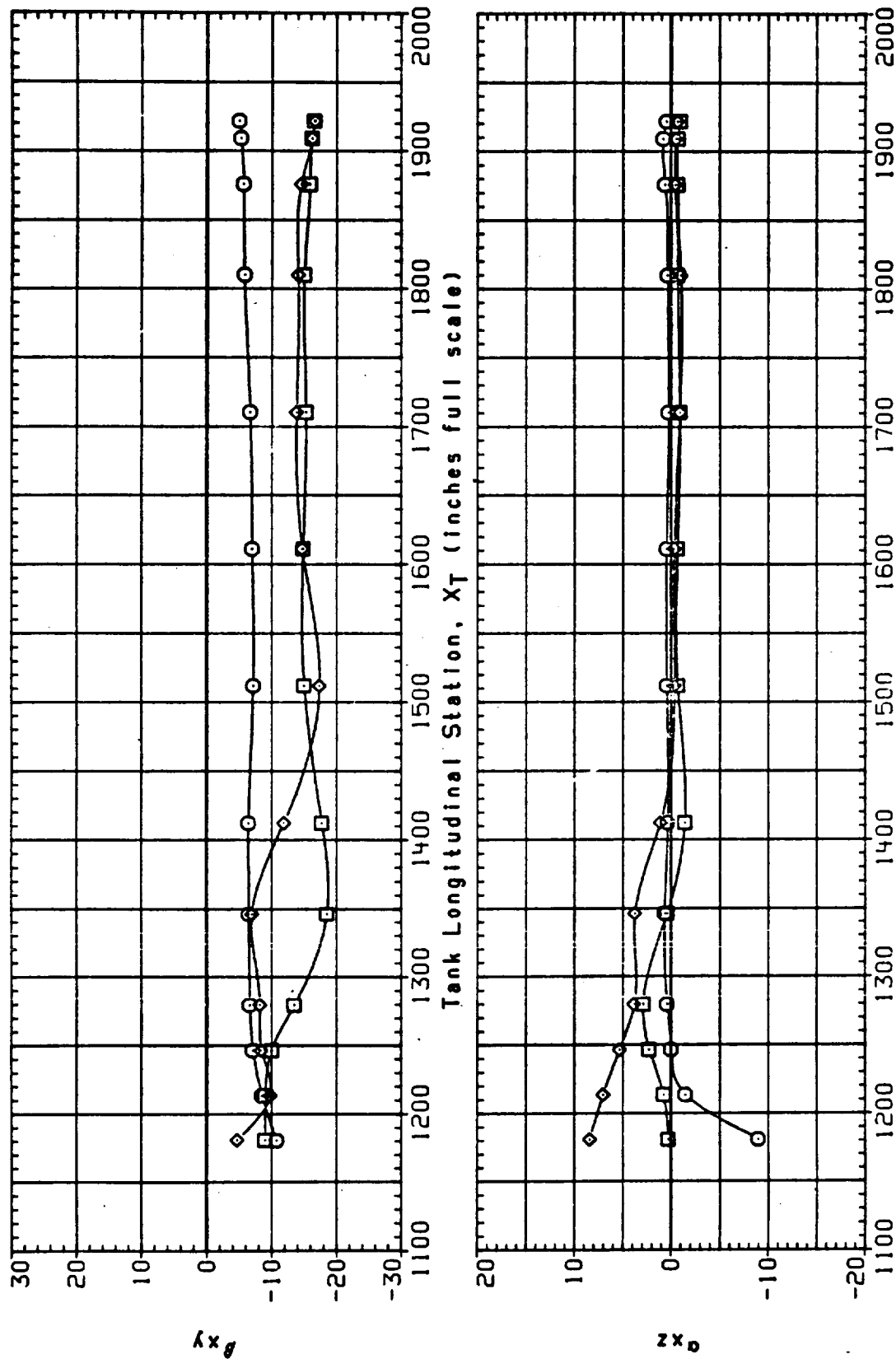


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	18-ELV	08-ELV
F3U154	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	.600	10.000	.000
F3U254	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	.600	10.000	.000
F3U354	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	.600	10.000	.000

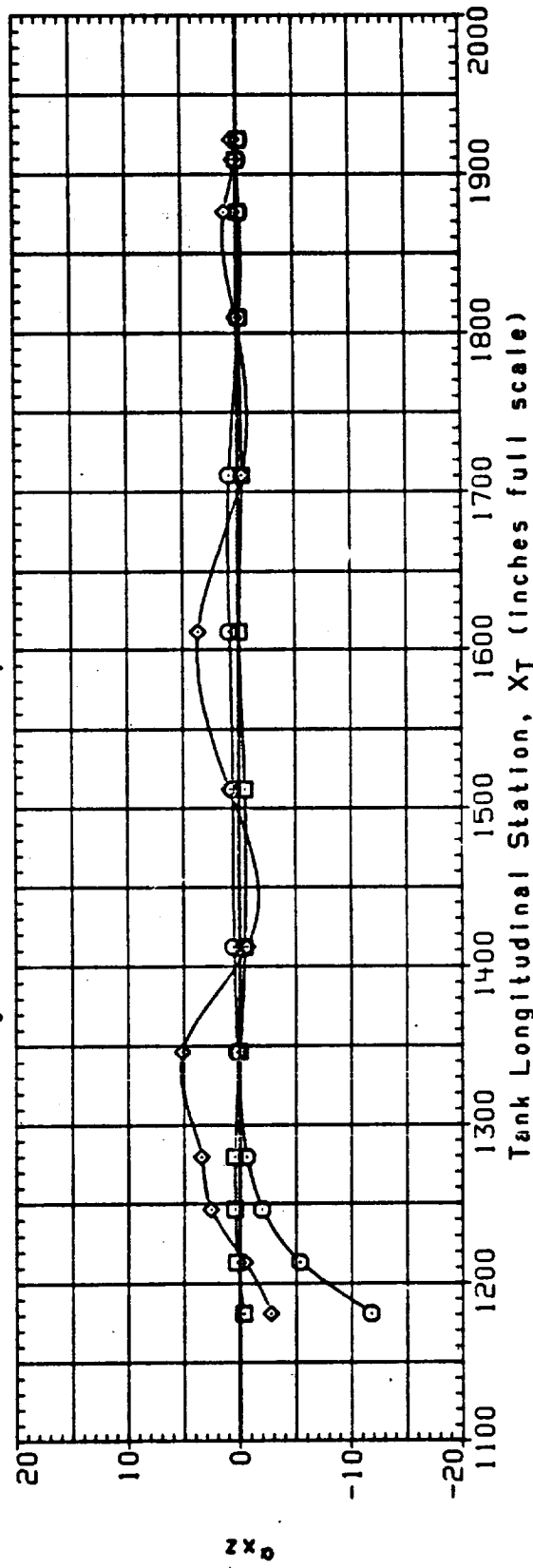
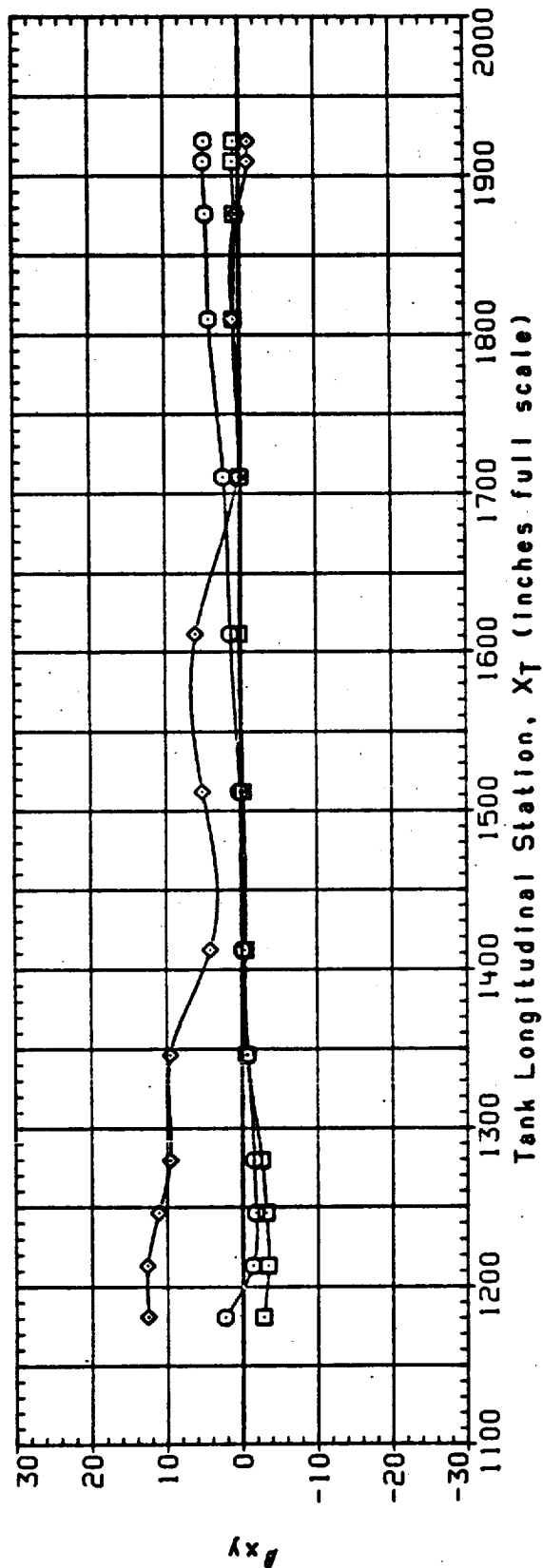


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE
VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL

F3U154
F3U254
F3U354

CONFIGURATION

IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)
IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)
IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)

THETAP

195.000
180.000
165.000

ALPHA

4.000
4.000
4.000

MACH

.600
.600
.600

19-ELV

10.000
10.000
10.000

OB-ELV

.000
.000
.000

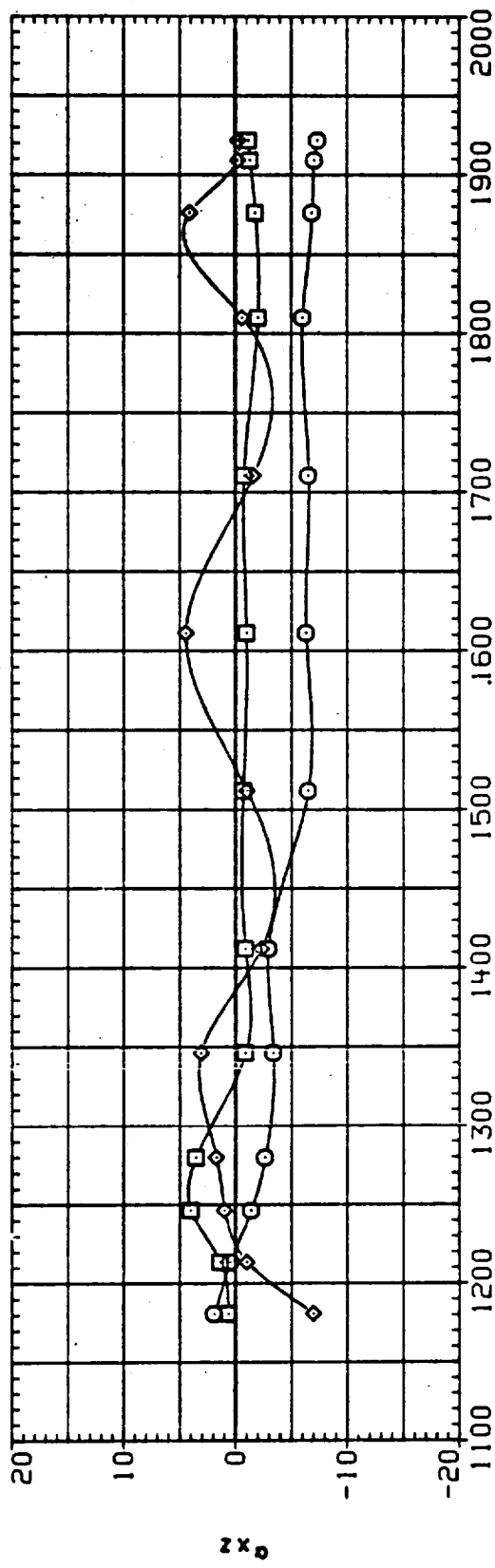
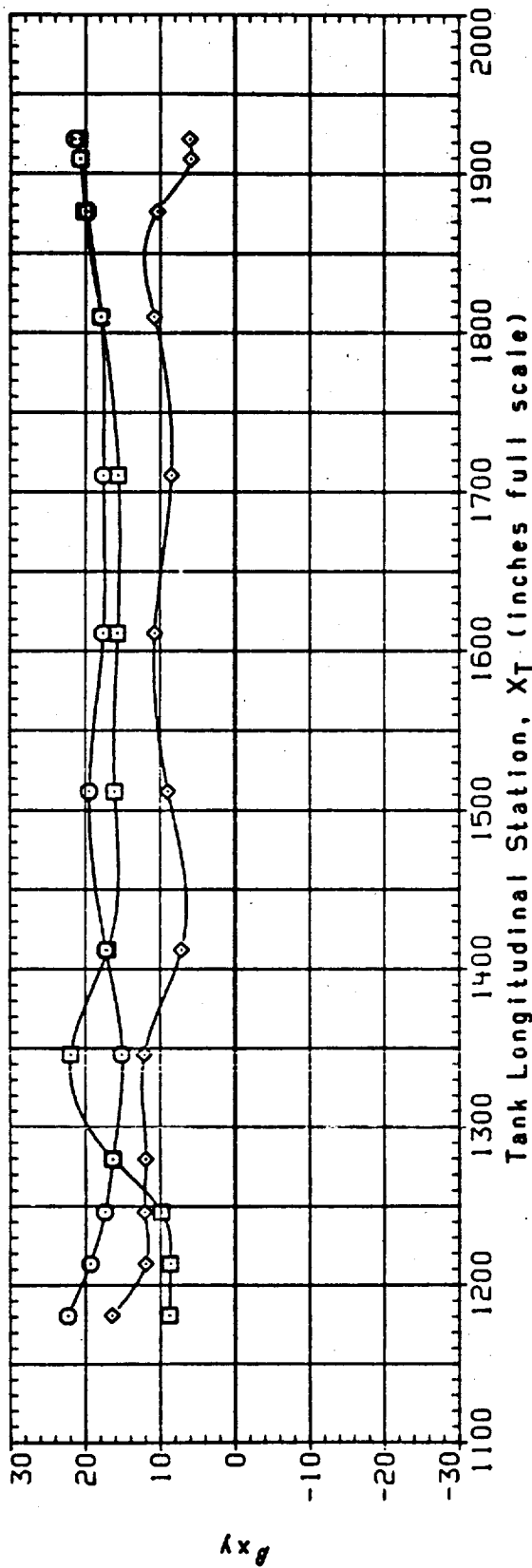


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE
VERSUS TANK STATION

(C)BETA = 4.00

DATA SET	SYMBOL	CONFIGURATION	THETAP	ALPHA	HACH	IB-ELV	OB-ELV
F3U156	○	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.900	10.000	.000
F3U256	◇	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.900	10.000	.000
F3U356	◻	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.900	10.000	.000

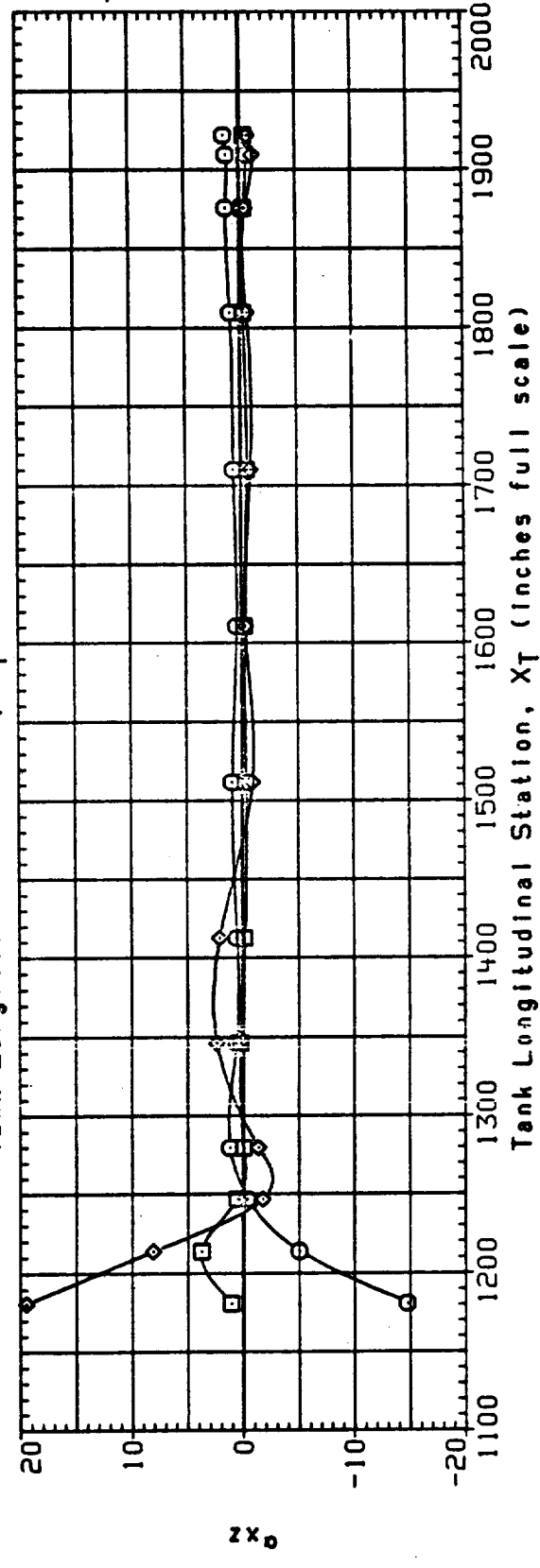
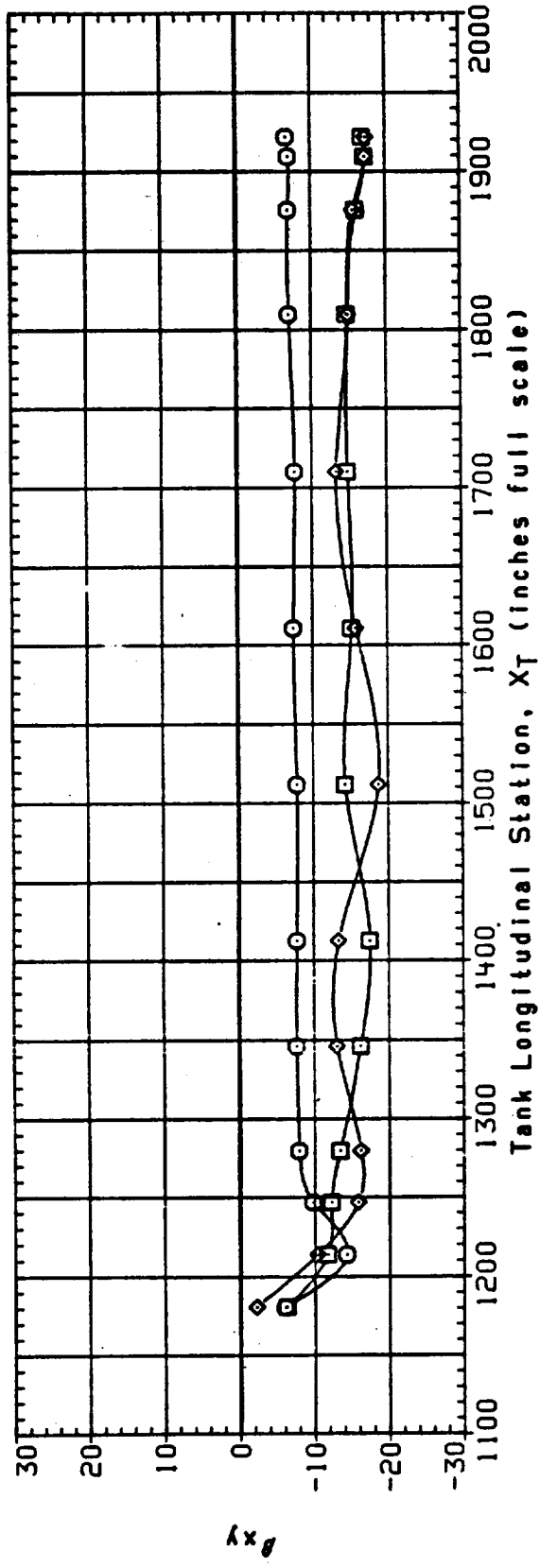


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U156	1A190A. OTS. LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.900	10.000	.000
F3U256	1A190A. OTS. MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.900	10.000	.000
F3U356	1A190A. OTS. RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.900	10.000	.000

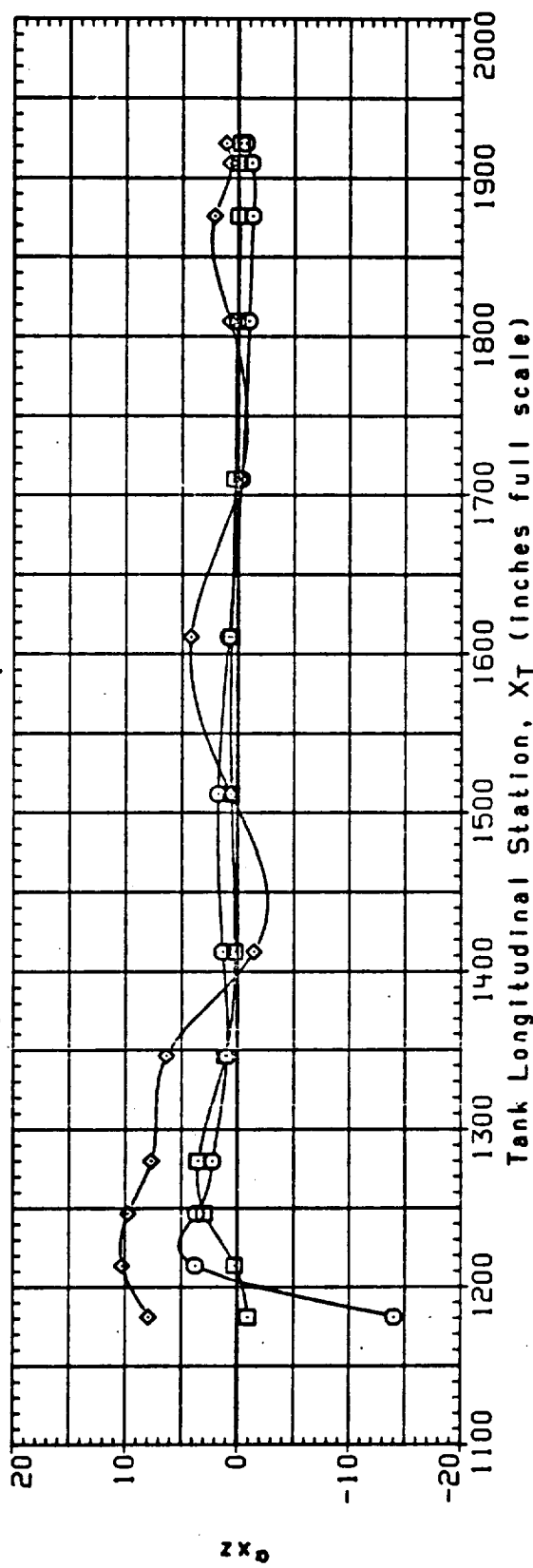
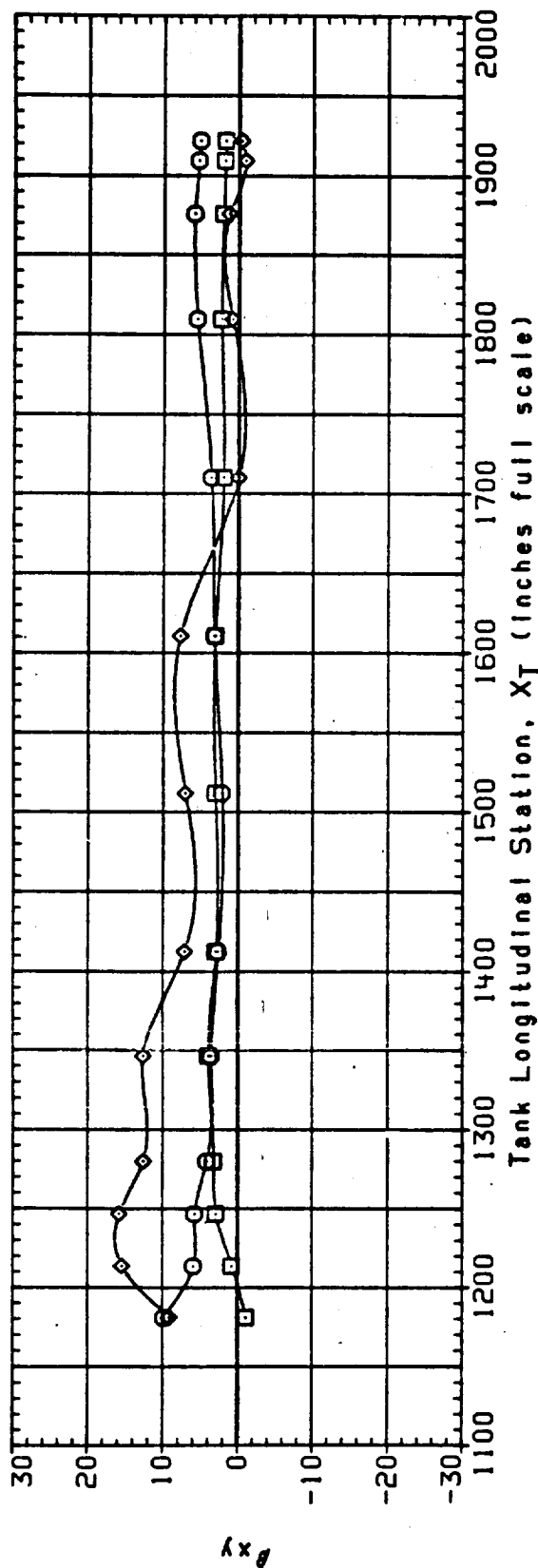


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F30156	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	.900	10.000	.000
F30256	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	.900	10.000	.000
F30356	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	.900	10.000	.000

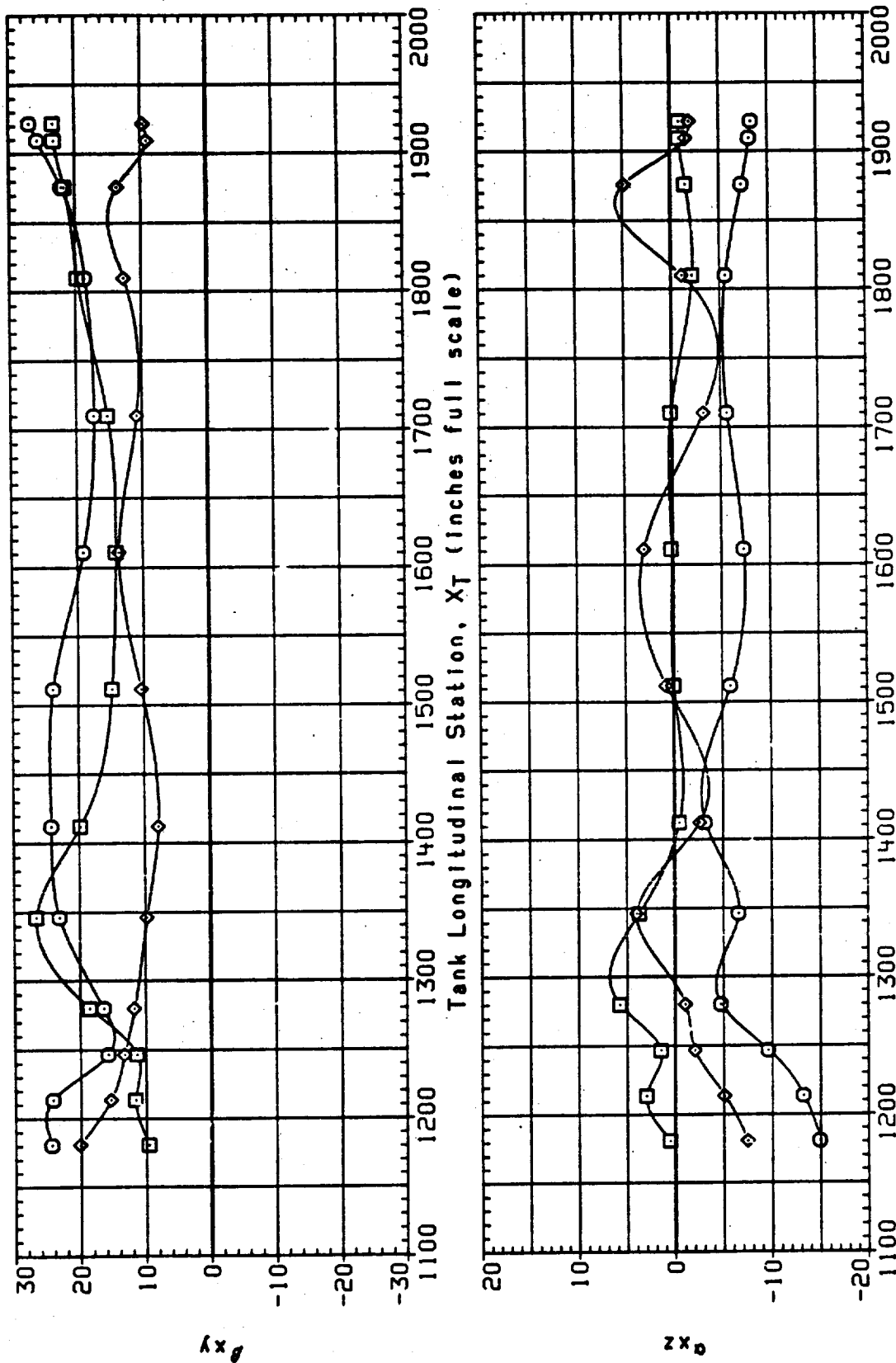


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(C)PETA = 4.00

DATA SET SYMBOL		CONFIGURATION				MACH		IB-ELV		OB-ELV	
		1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	TH-TAP	ALPHA	MACH	IB-ELV	OB-ELV		
F3U159	○				195.000	.000	1.100	10.000	.000		
F3U259	□				180.000	.000	1.100	10.000	.000		
F3U359	◇				165.000	.000	1.100	10.000	.000		

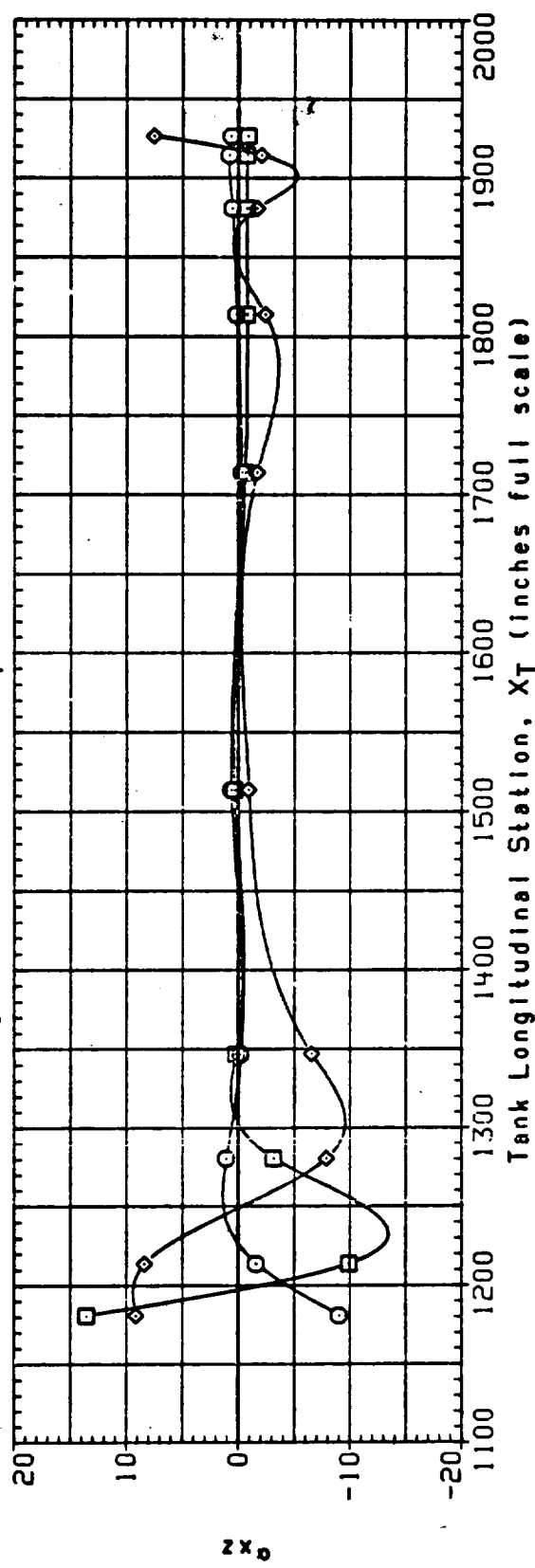
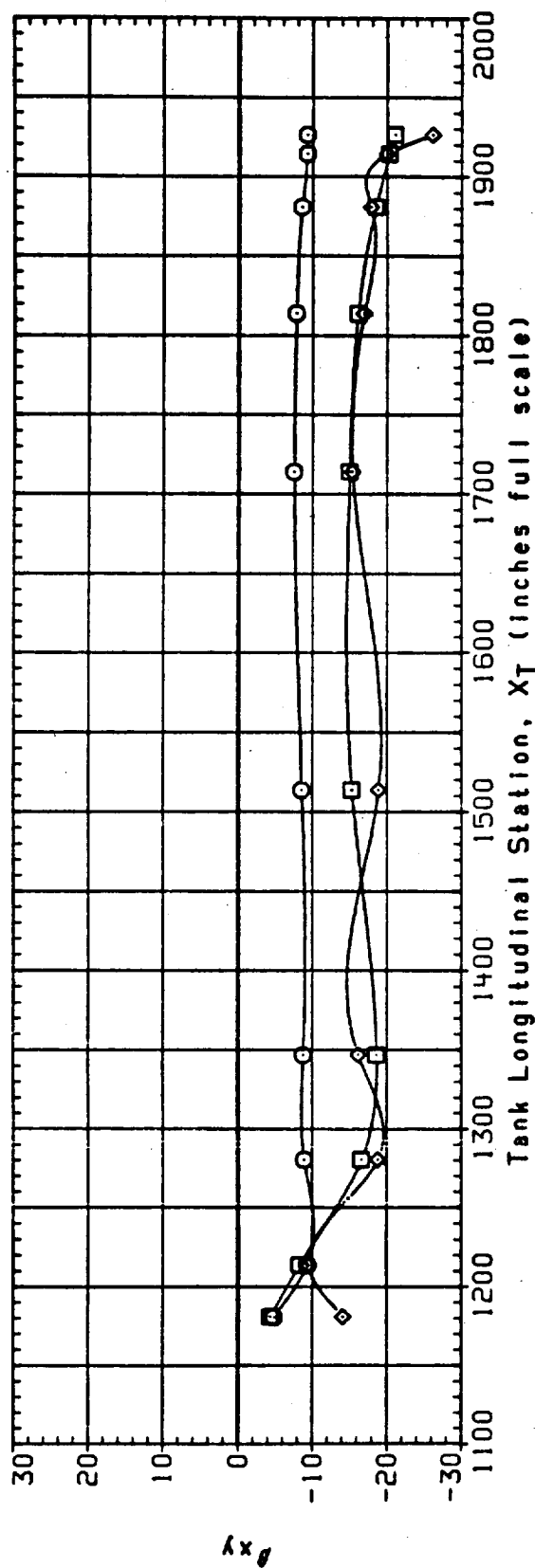


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	1B-ELV	OB-ELV
F30159	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.100	10.000	.000
F30259	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.100	10.000	.000
F30359	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.100	10.000	.000

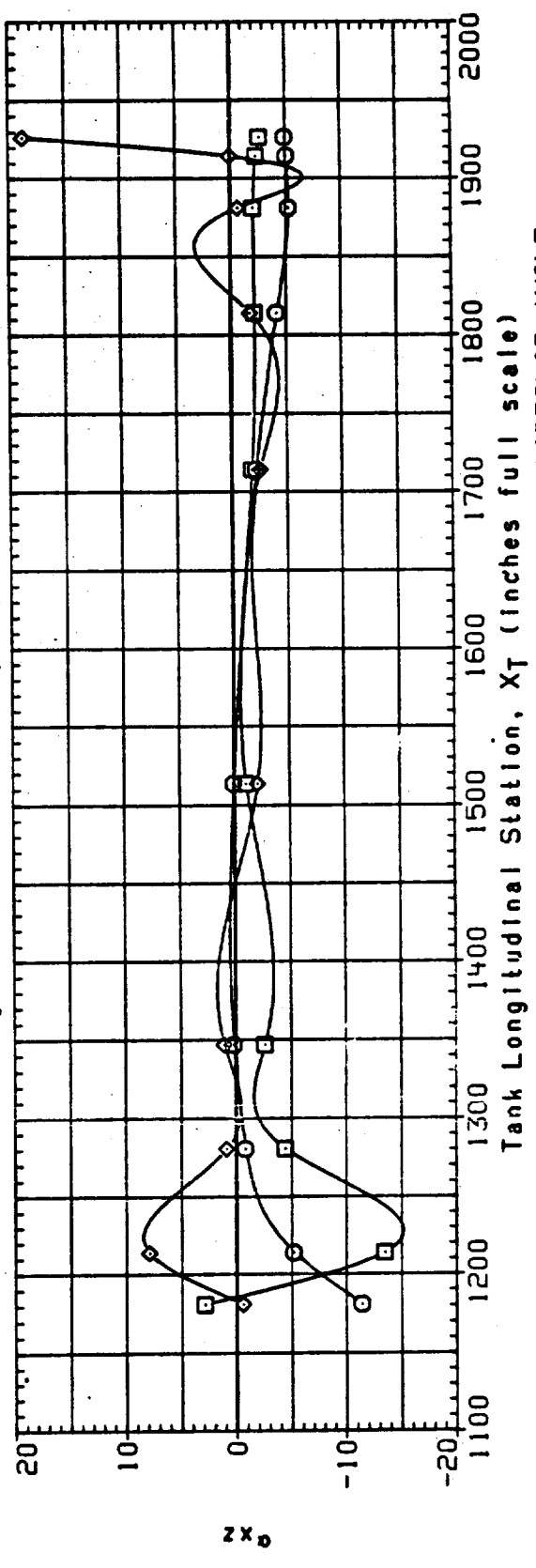
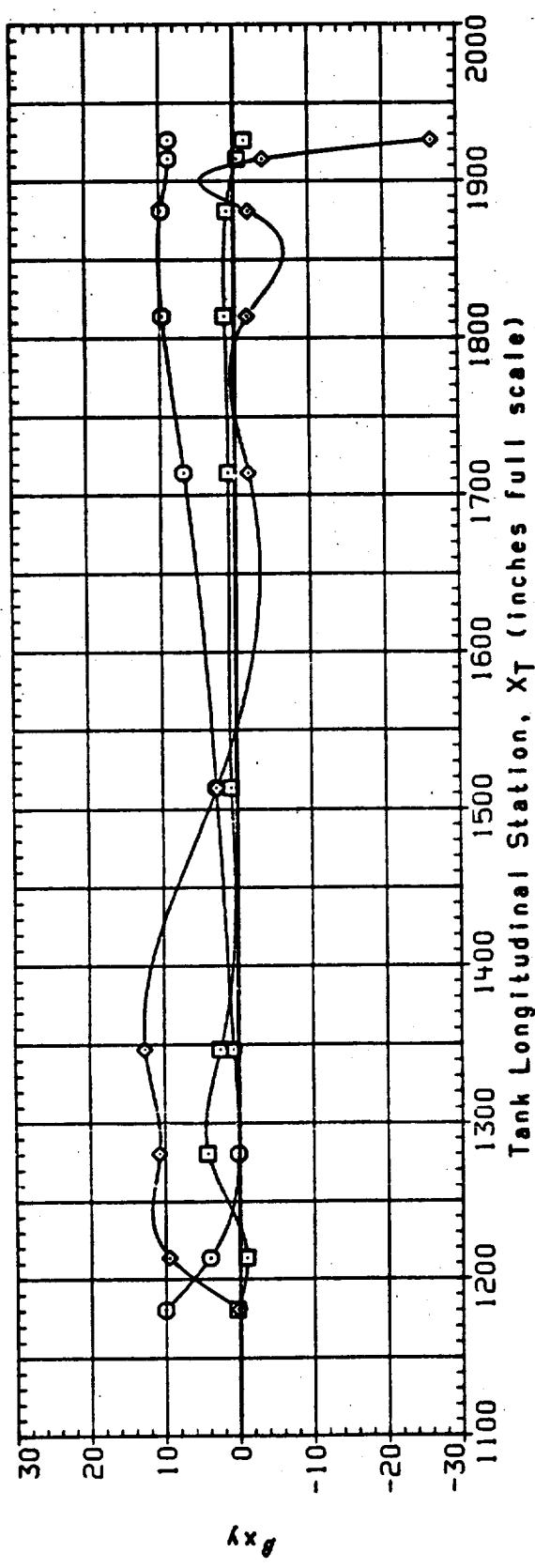


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	1B-ELV	OB-ELV
F30159	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.100	10.000	.000
F30259	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.100	10.000	.000
F30359	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.100	10.000	.000

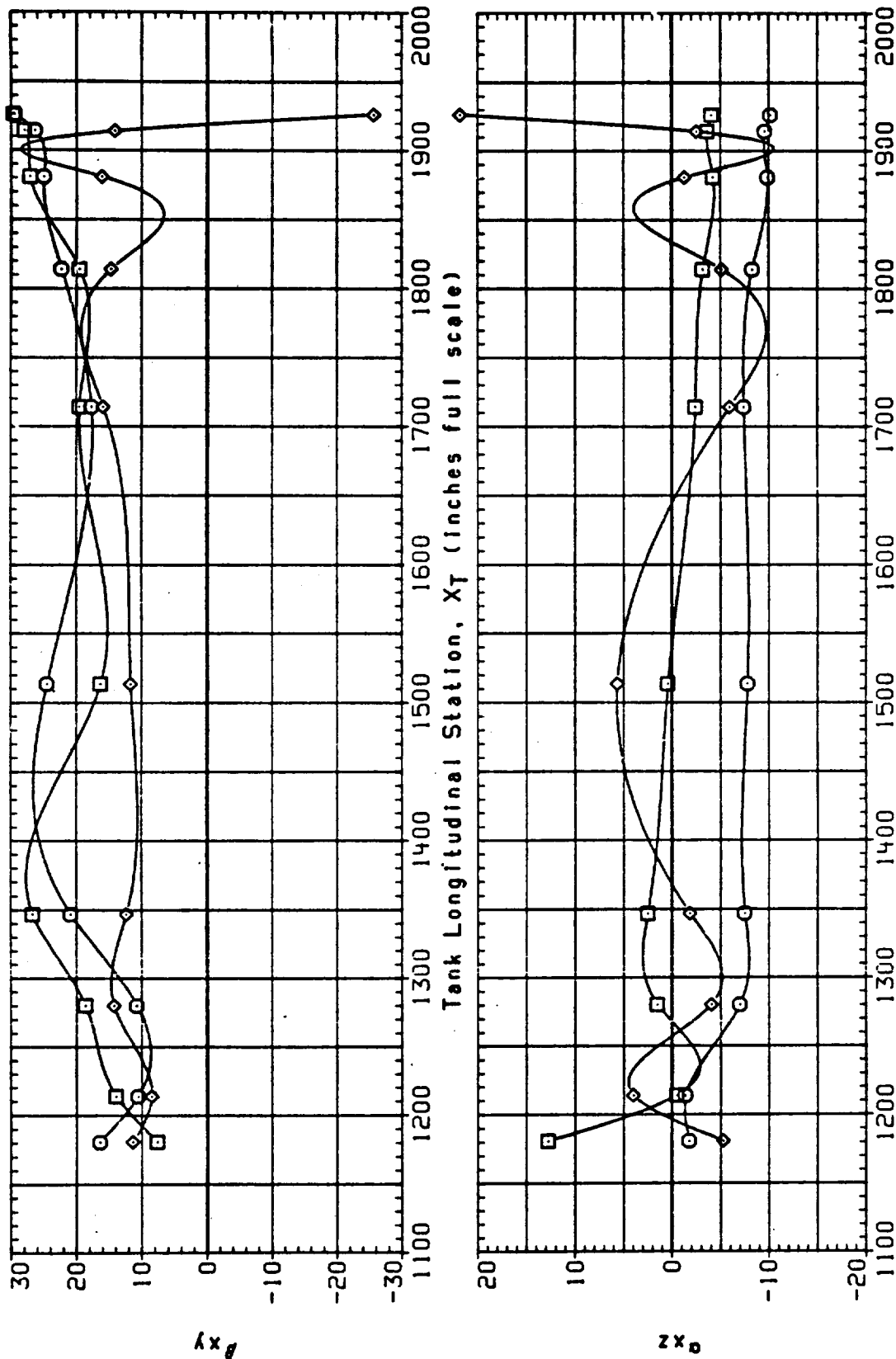


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(C)BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U161	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	1.250	10.000	.000
F3U261	IA190A, OTS, MID. TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	1.250	10.000	.000
F3U361	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	1.250	10.000	.000

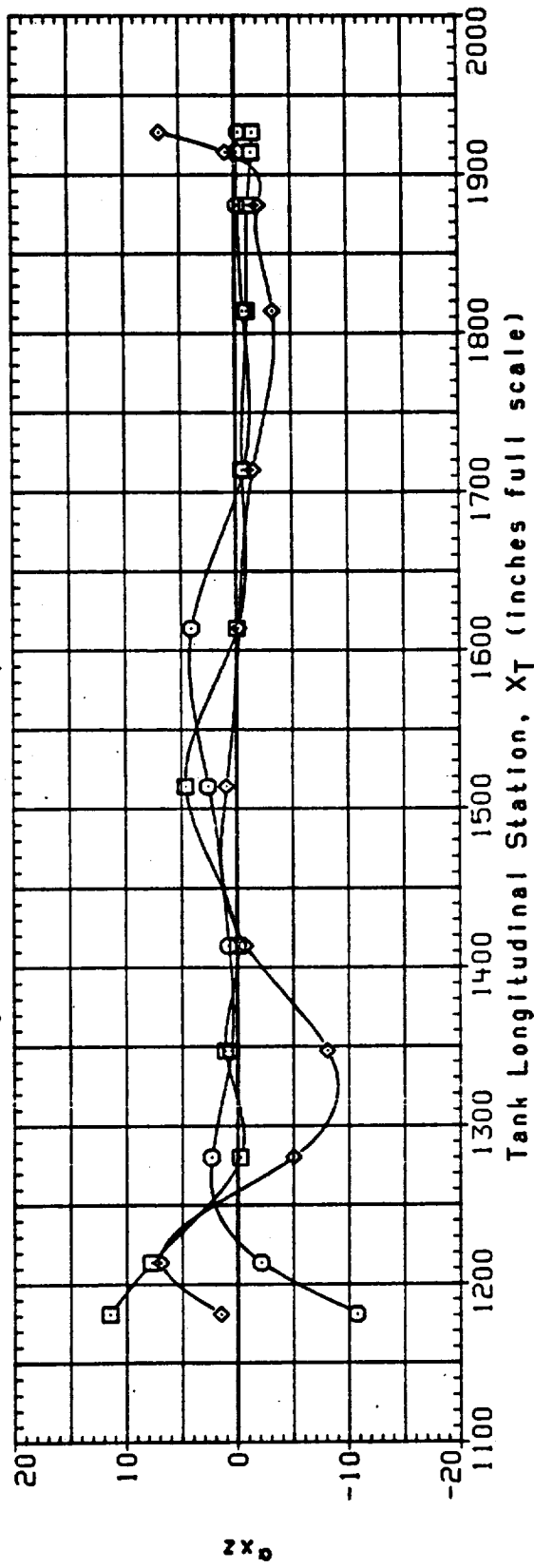
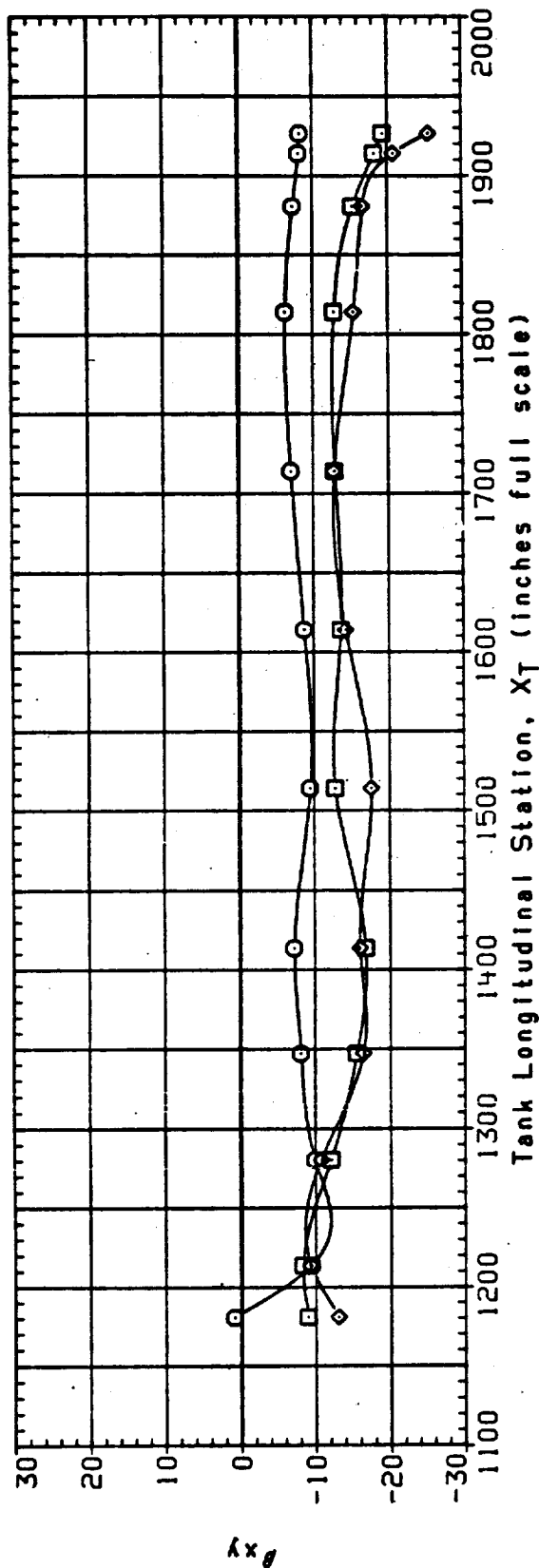


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL CONFIGURATION THETAP ALPHA MACH IB-ELV OB-ELV

F30161 1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31) 195.000 -4.000 1.250 10.000 .000
 F30261 1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46) 180.000 -4.000 1.250 10.000 .000
 F30361 1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43) 165.000 -4.000 1.250 10.000 .000

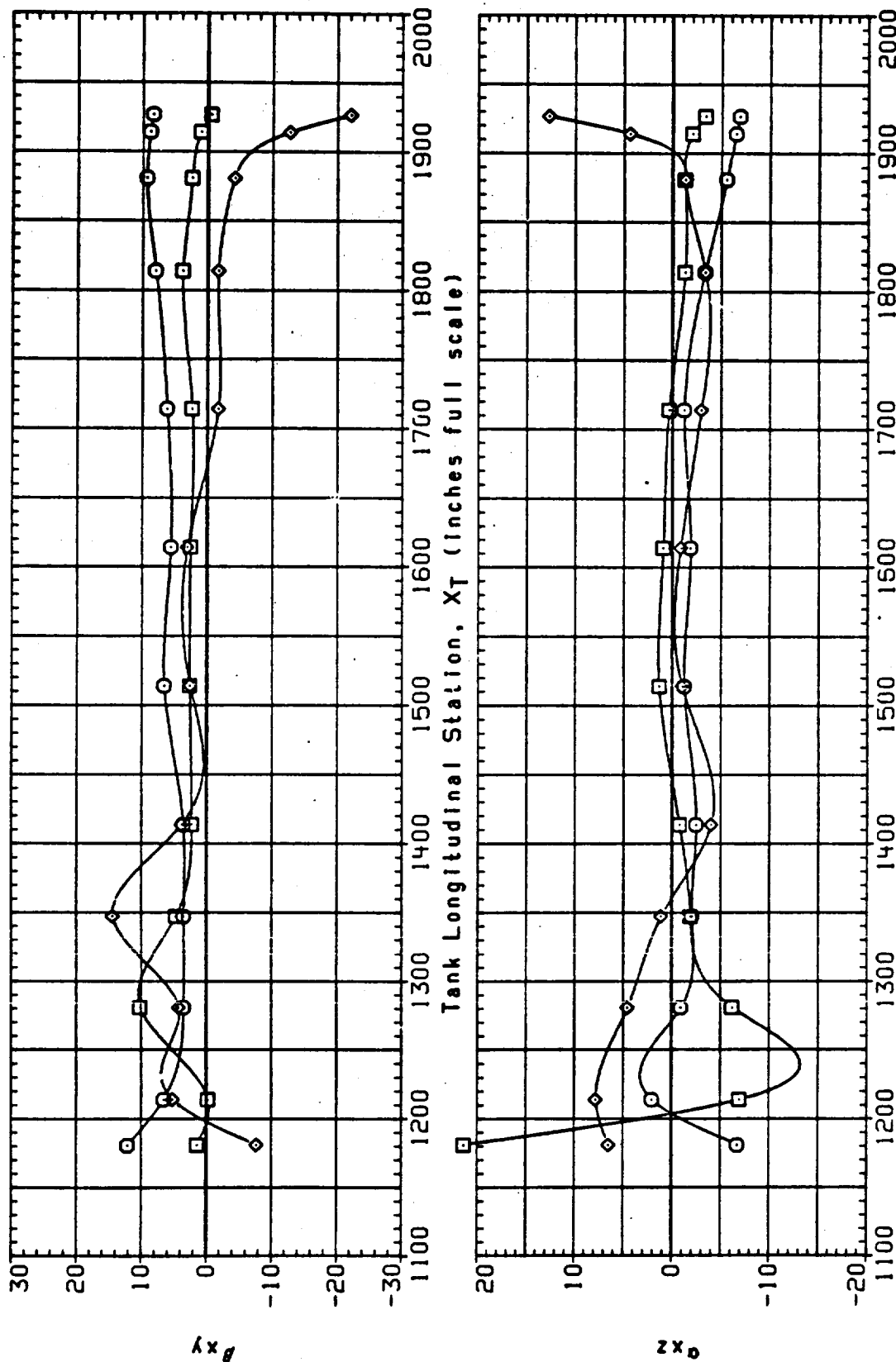


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE
VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETA	ALPHA	MACH	IB-ELV	OB-ELV
F3U161	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	1.250	10.000	.000
F3U261	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	1.250	10.000	.000
F3U361	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	1.250	10.000	.000

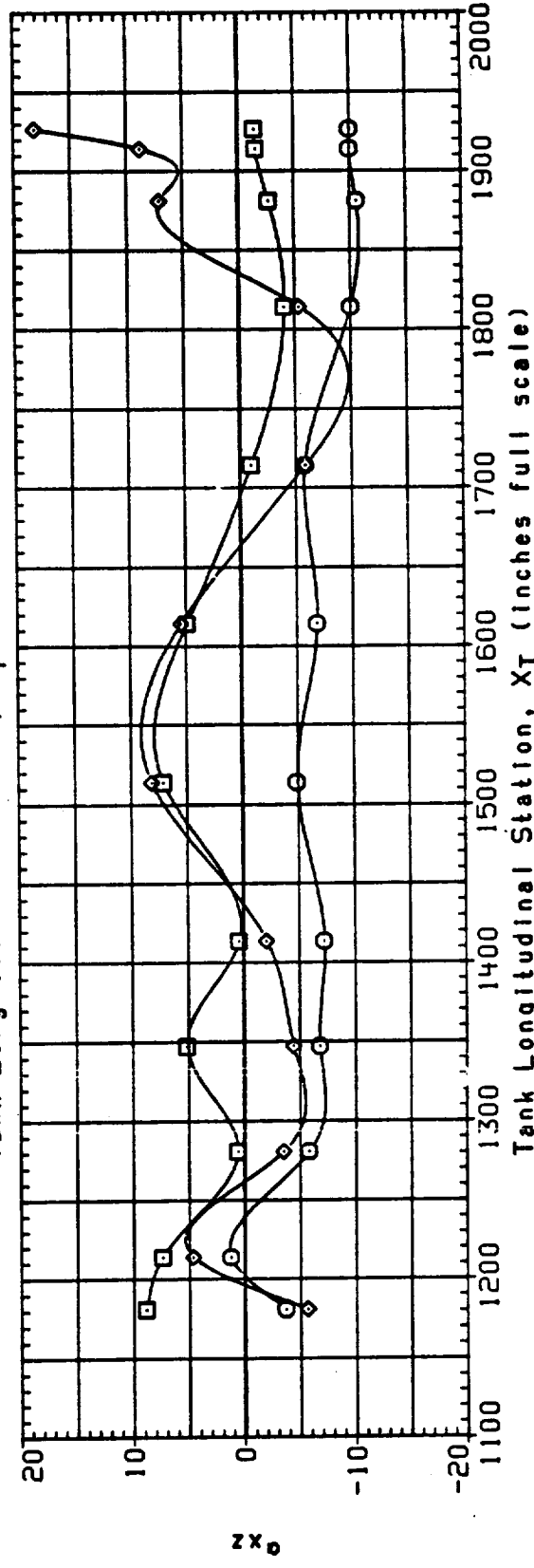
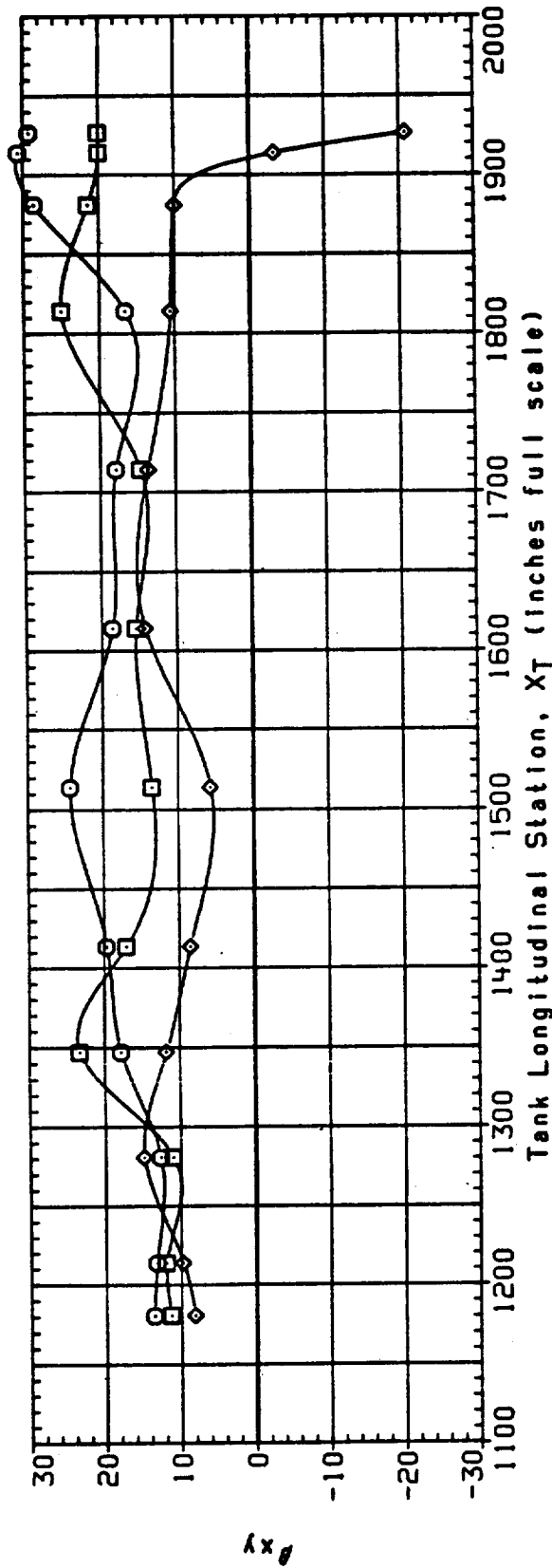


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

() BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F30162	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.250	10.000	.000
F30262	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.250	10.000	.000
F30362	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.250	10.000	.000

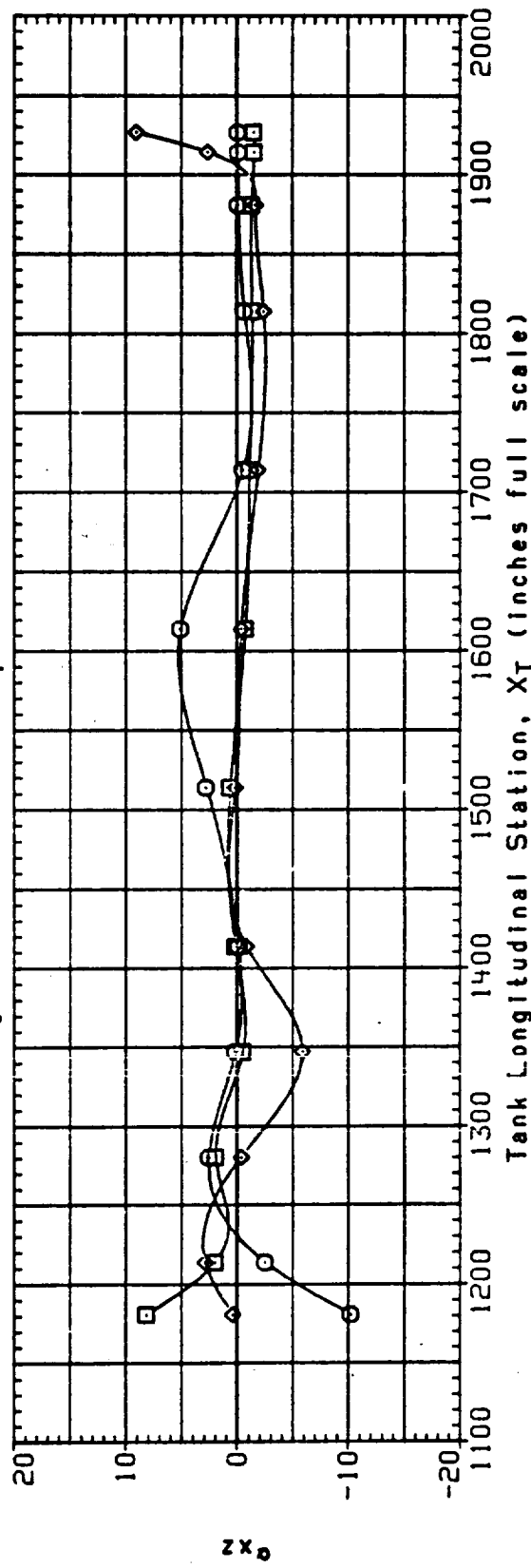
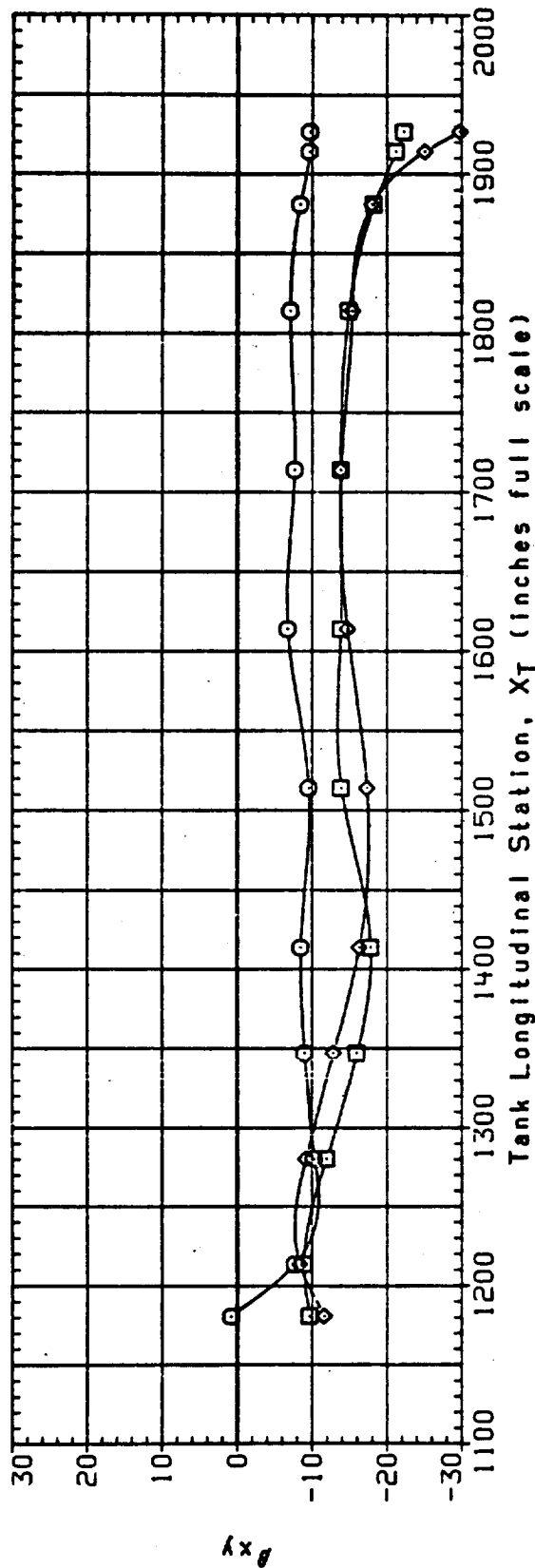


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U162	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.250	10.000	.000
F3U262	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.250	10.000	.000
F3U362	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.250	10.000	.000

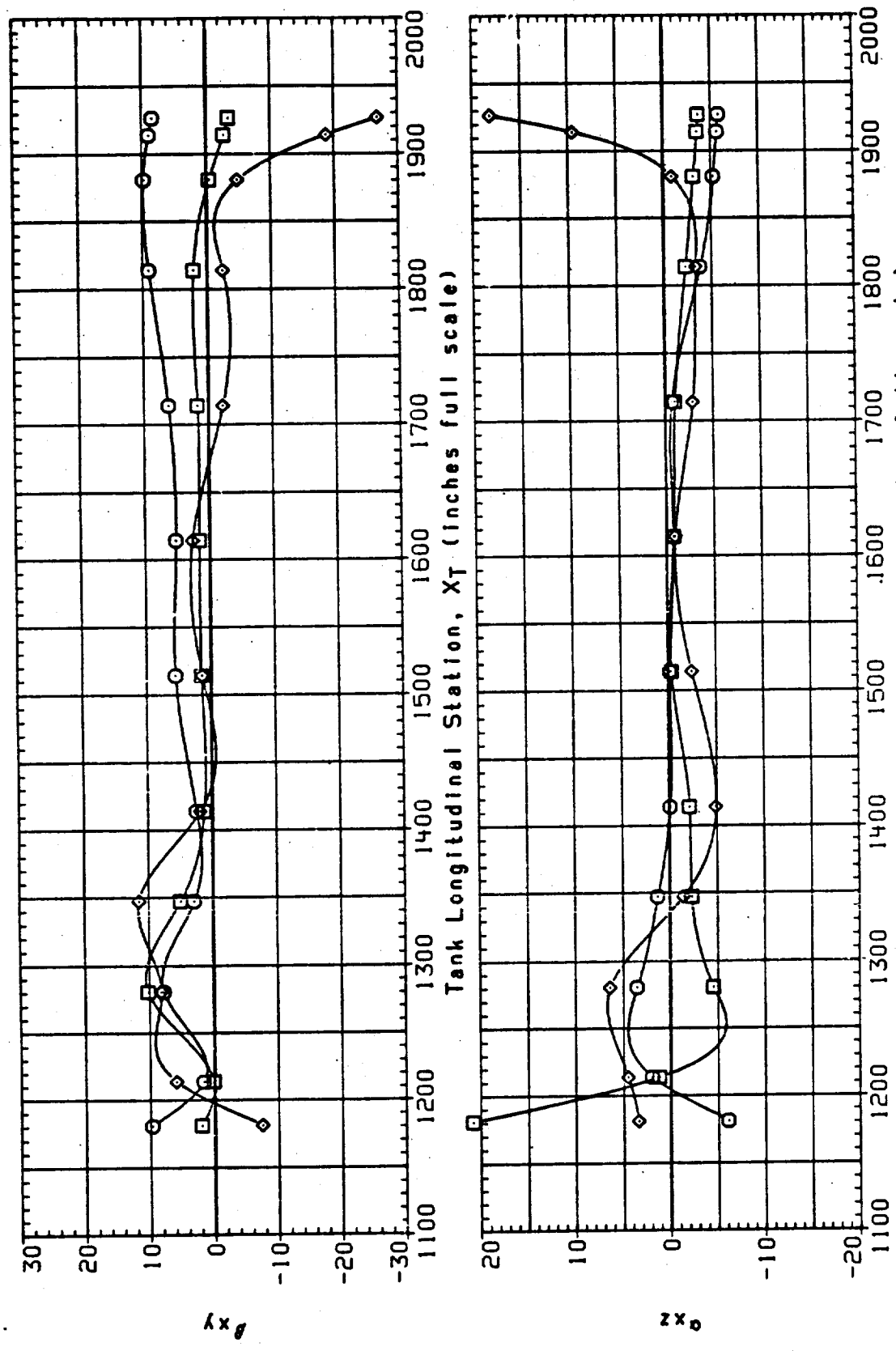


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	CB-ELV
F30162	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.250	10.000	.000
F30262	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.250	10.000	.000
F30362	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.250	10.000	.000

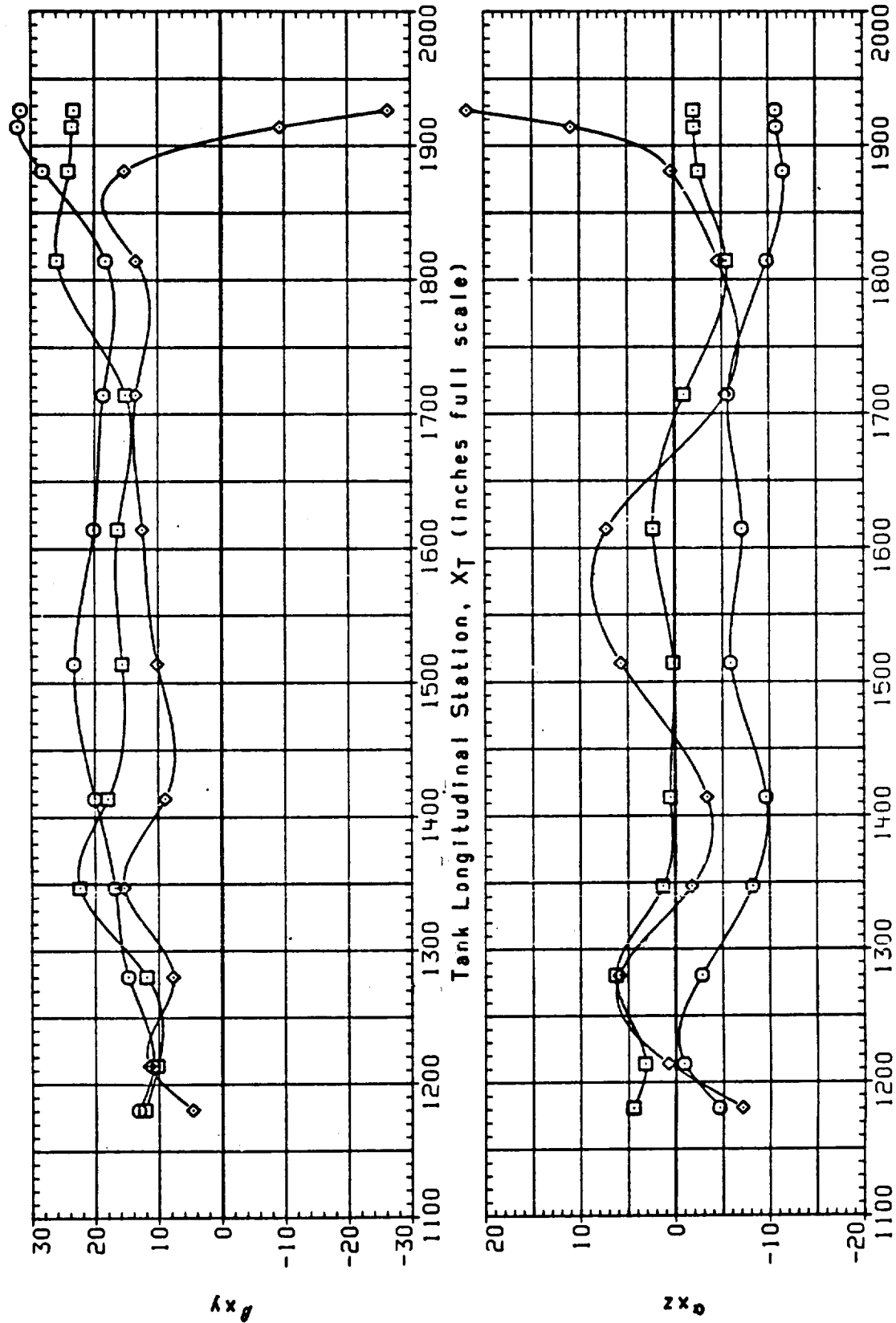


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(C) BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETA	ALPHA	MACH	19-ELV	08-ELV
F3U163	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	1.250	10.000	.000
F3U263	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	1.250	10.000	.000
F3U363	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	1.250	10.000	.000

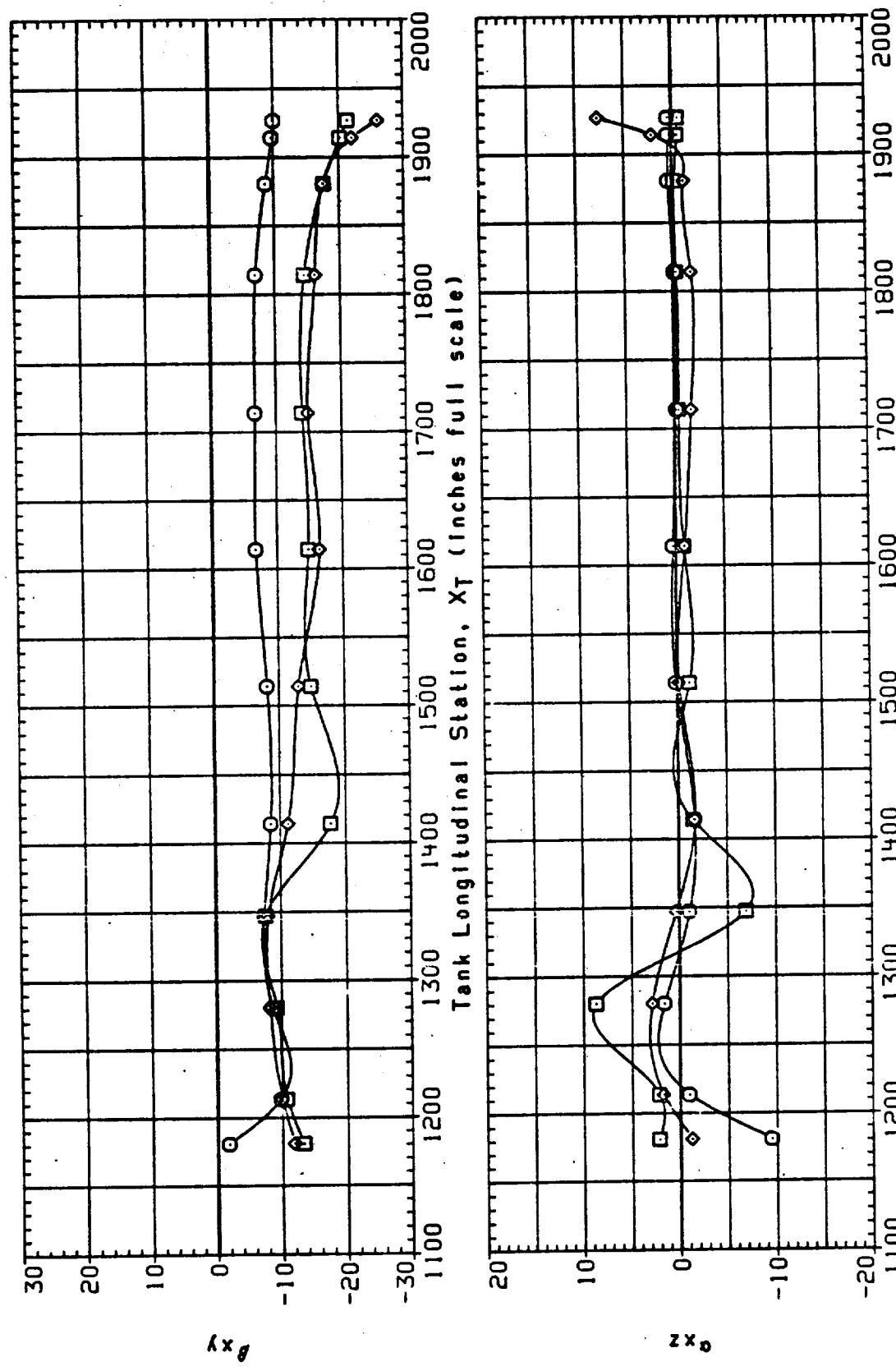


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

{ "BETA = -4.00

DATA SET	SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	1B-ELV	0B-ELV
F3U163	○	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	1.250	10.000	.000
F3U263	□	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	1.250	10.000	.000
F3U363	◇	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	1.250	10.000	.000

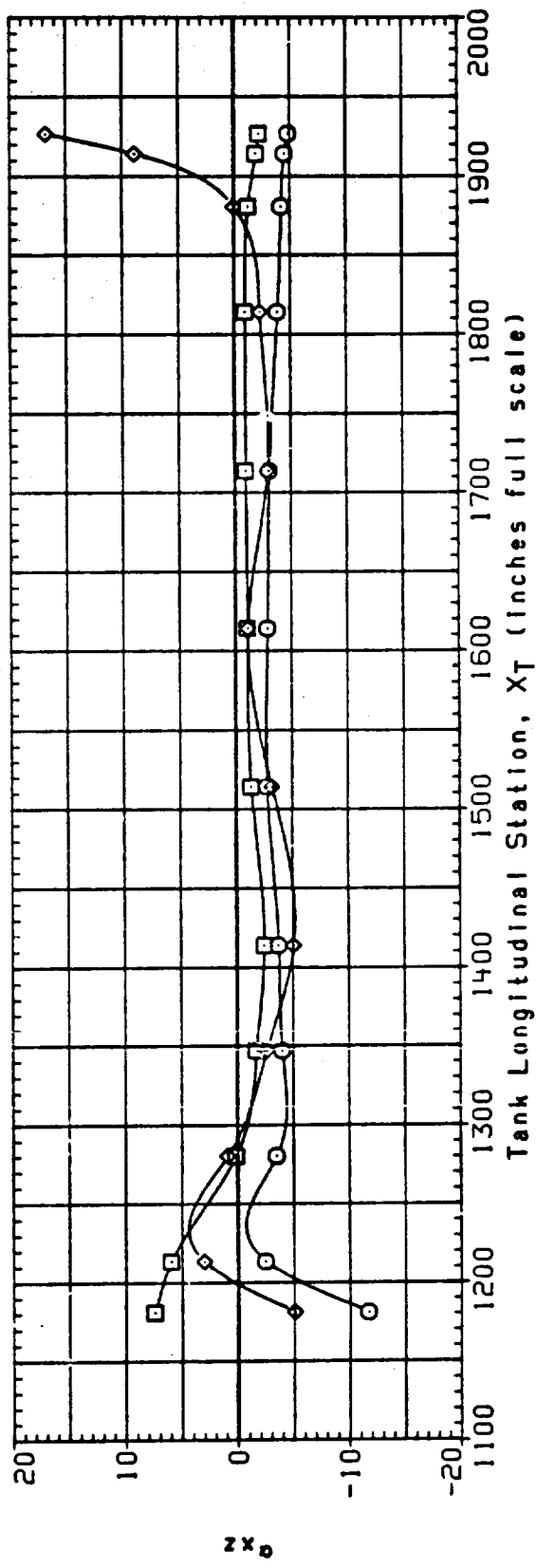
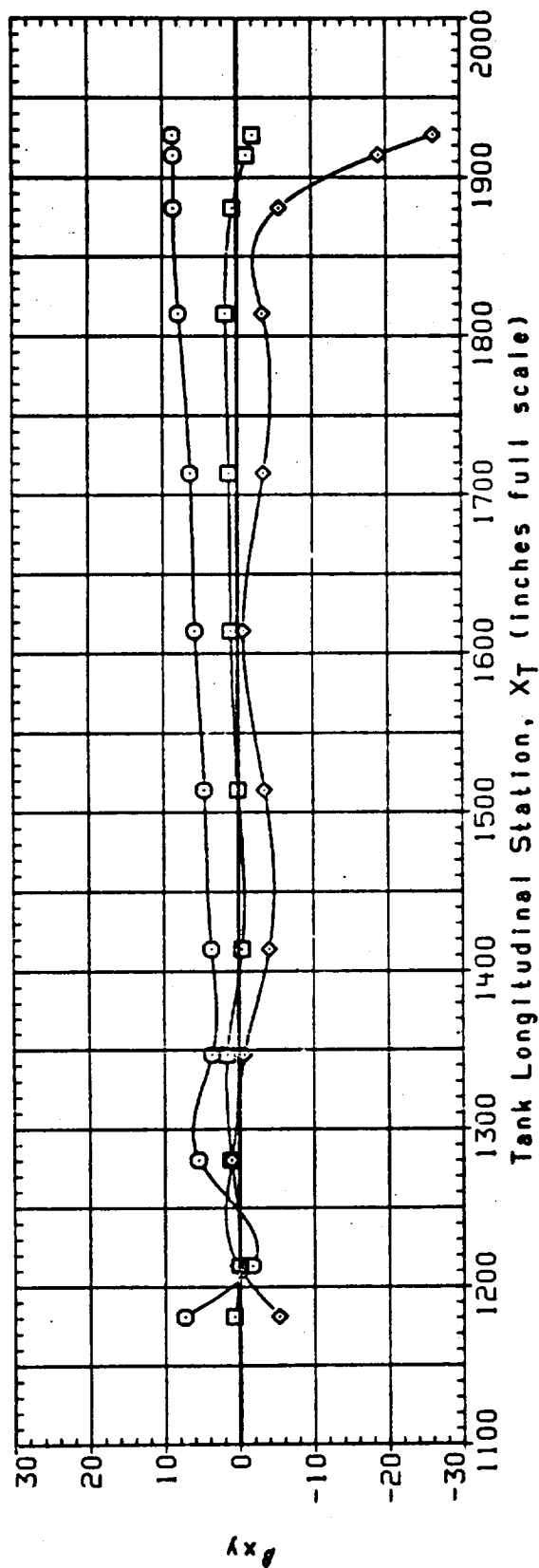


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE
VERSUS TANK STATION

(B) BETA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F30163	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	1.250	10.000	.000
F30263	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	1.250	10.000	.000
F30363	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	1.250	10.000	.000

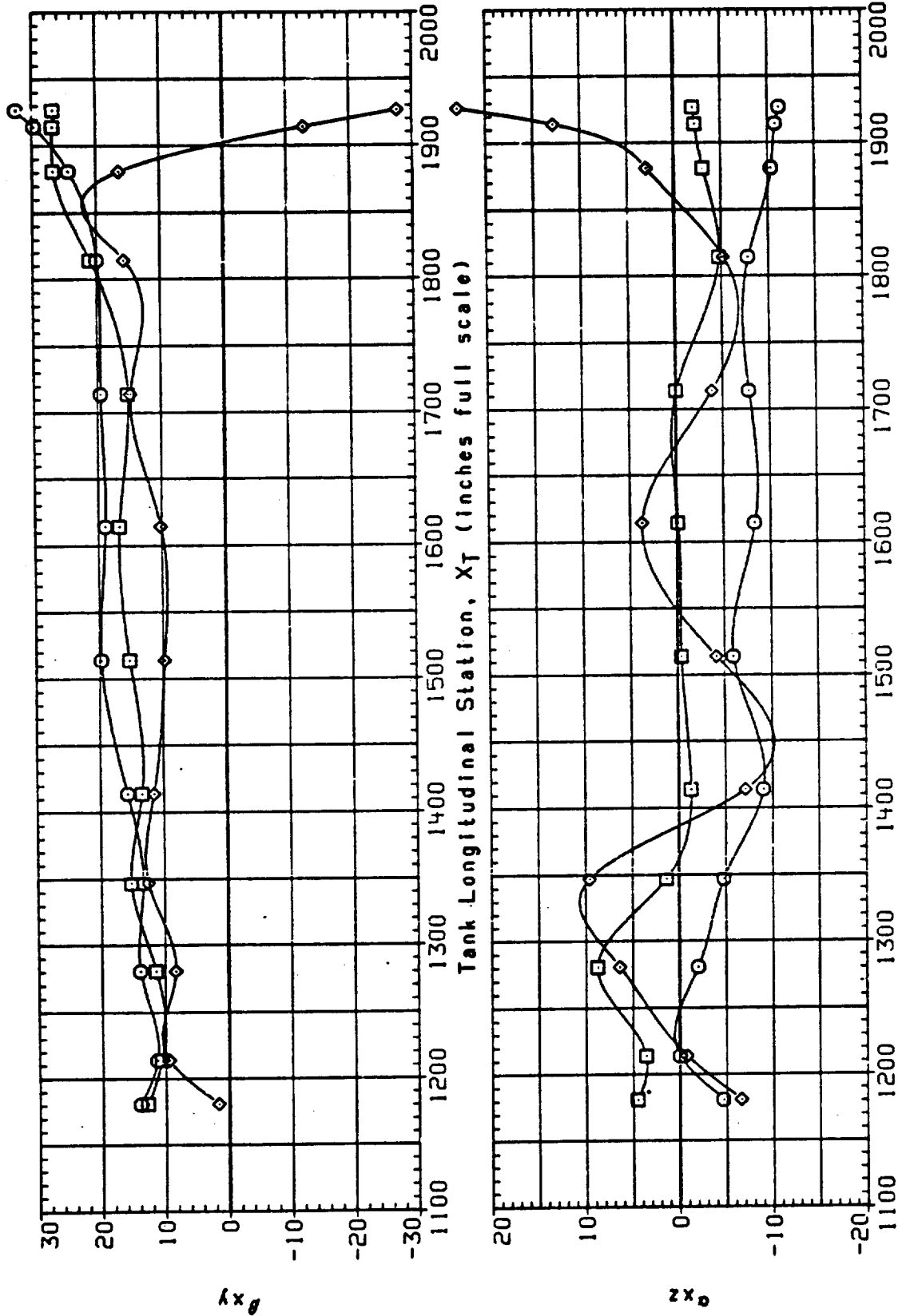


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

$\alpha_{TA} = 4.00$

DATA SET SYMBOL	CONFIGURATION	THETAP	ALPHA	MACH	IB-ELV	OB-ELV
F3U165	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.400	10.000	.000
F3U265	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.400	10.000	.000
F3U365	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.400	10.000	.000

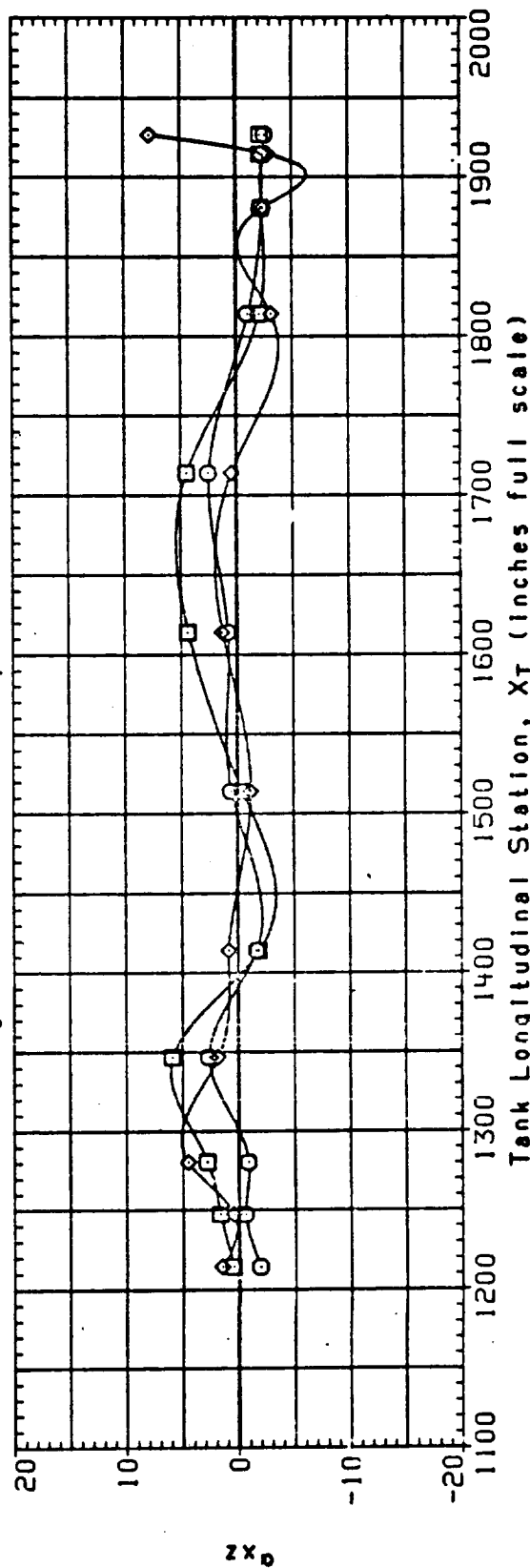
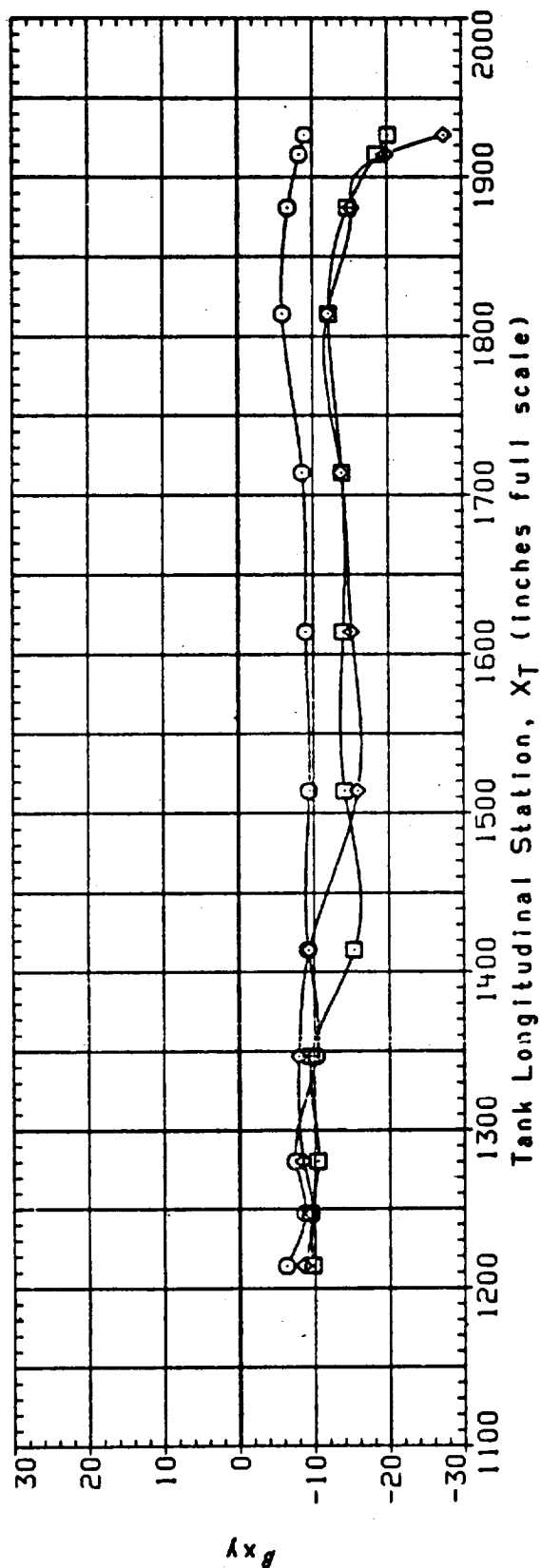


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) BETA = -4.00

DATA SET SYMBOL	CONFIGURATION	THETA	ALPHA	MACH	IB-ELV	OB-ELV
F3U165	IA190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.400	10.000	.000
F3U265	IA190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.400	10.000	.000
F3U365	IA190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.400	10.000	.000

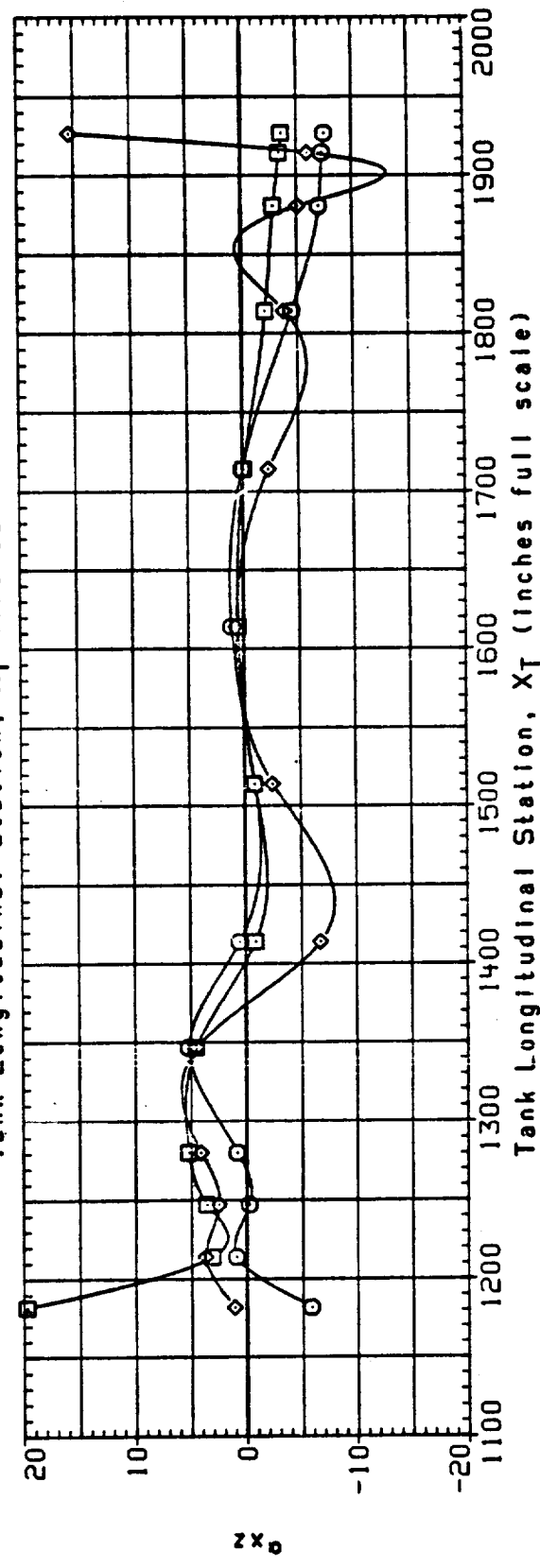
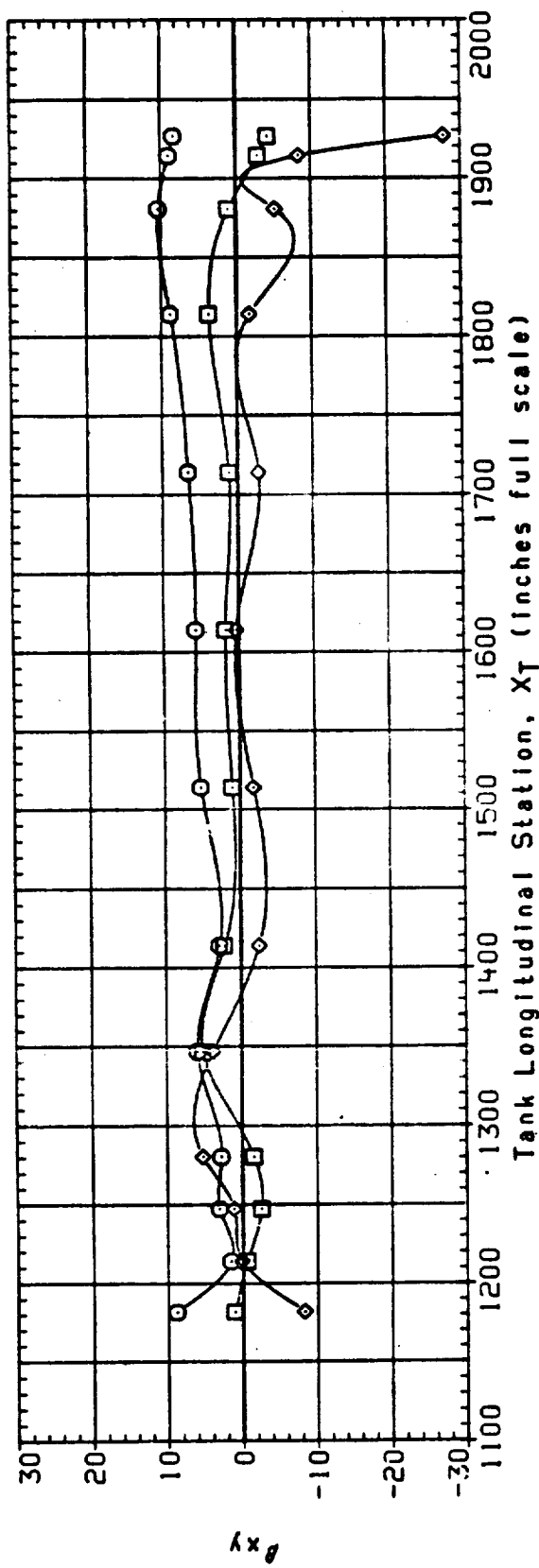


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(B) BETA = .00

DATA SET	SYMBOL	CONFIGURATION	THETA	ALPHA	MACH	18-ELV	08-ELV
F3U165	○	1A190A, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.400	10.000	.000
F3U265	□	1A190A, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.400	10.000	.000
F3U355	◇	1A190A, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.400	10.000	.000

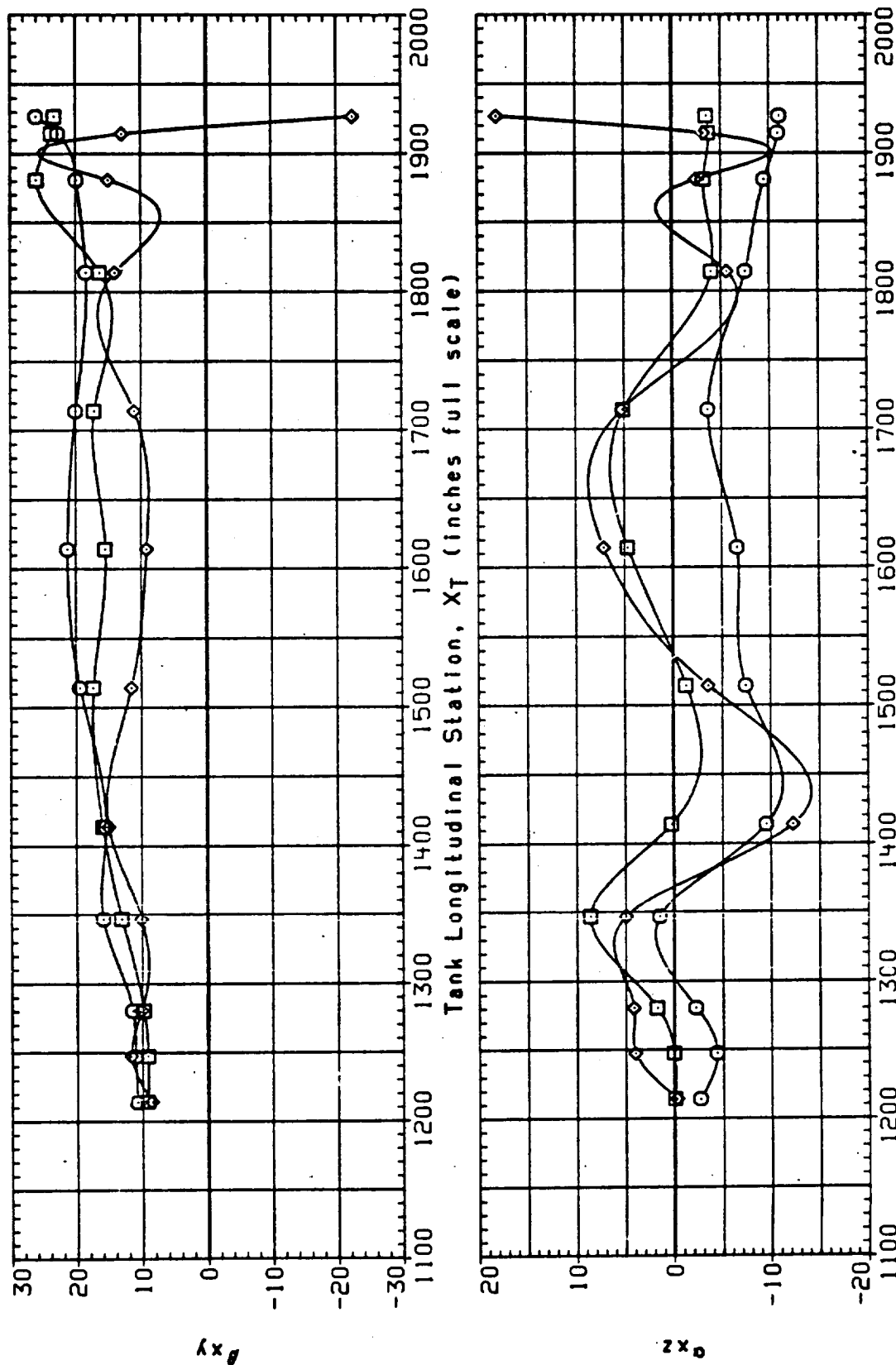


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE
VERSUS TANK STATION

(C) BETA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	1B-ELV	OB-ELV
F3V160	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	1.550	10.000	-5.000
F3V260	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	1.550	10.000	-5.000
F3V360	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	1.550	10.000	-5.000

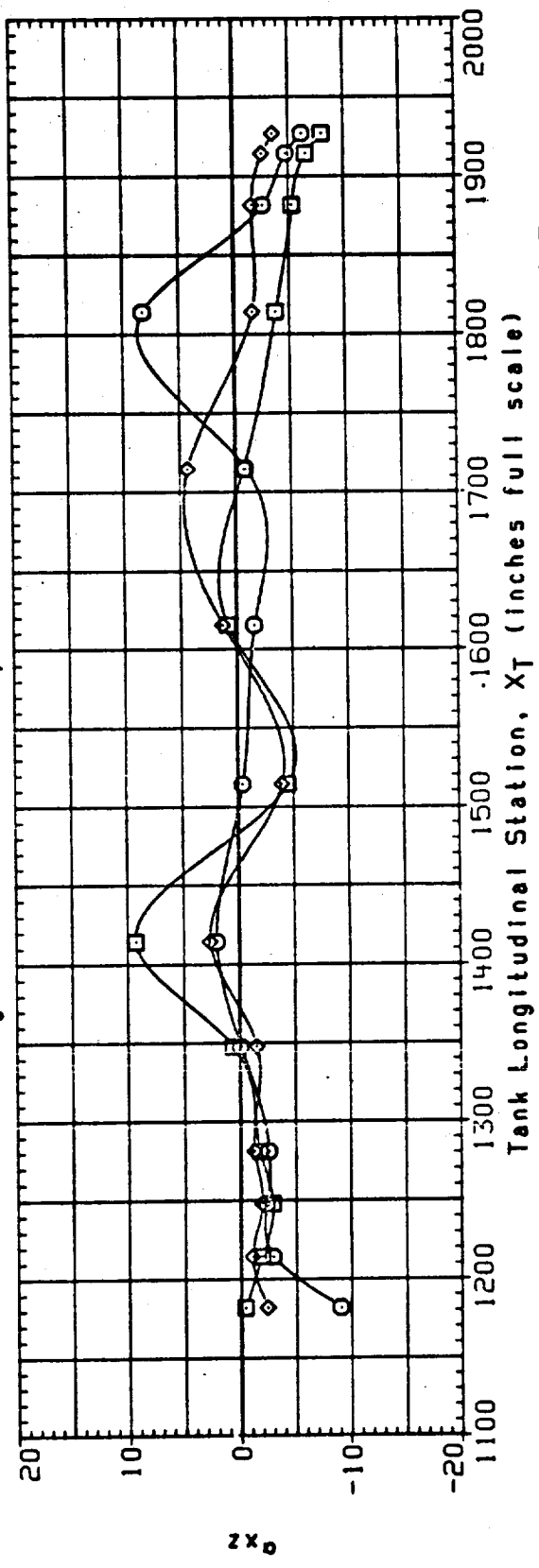
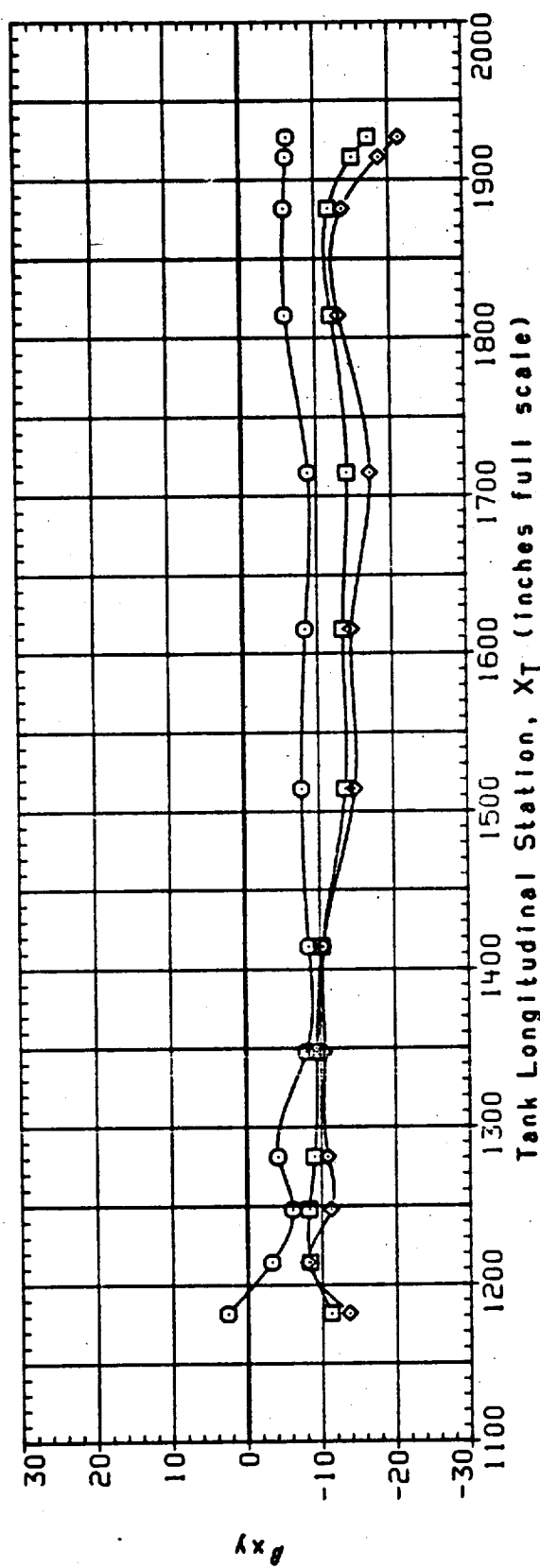


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) ALPHA = -.50

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	1B-ELV	OB-ELV
F3V161	1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	1.550	10.000	-5.000
F3V261	1A190B, OTS, MID. TRAVERSING PROBE (PROBE # 46)	180.000	.000	1.550	10.000	-5.000
F3V361	1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	1.550	10.000	-5.000

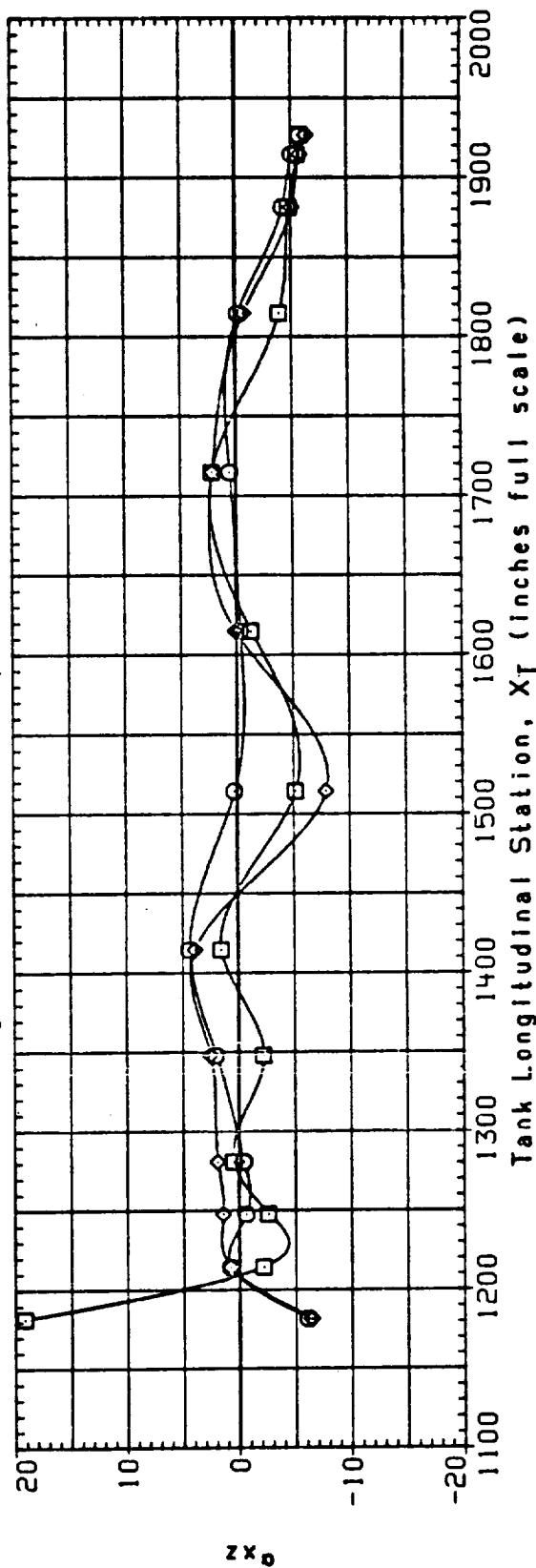
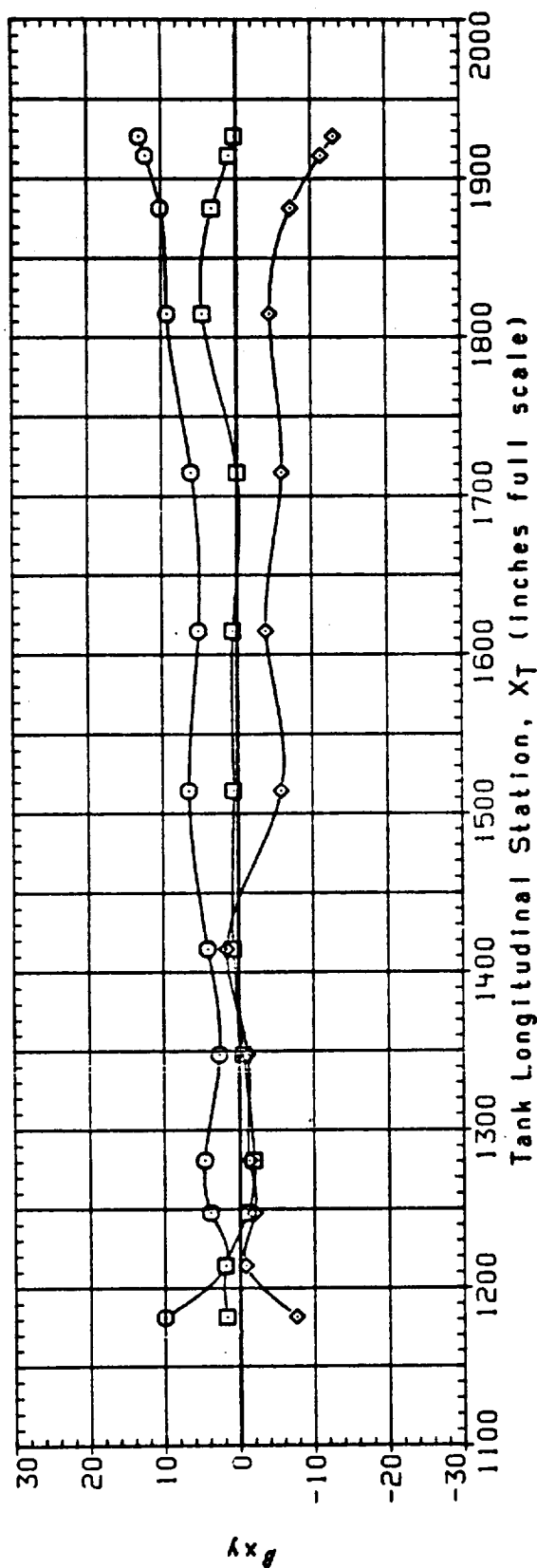


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) ALPHA = -.50

DATA SET	SYMBOL	CONFIGURATION	TH-ETAP	BETA	MACH	1B-ELV	OB-ELV
F3V162	○	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	1.550	10.000	-5.000
F3V262	□	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	1.550	10.000	-5.000
F3V362	◇	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	1.550	10.000	-5.000

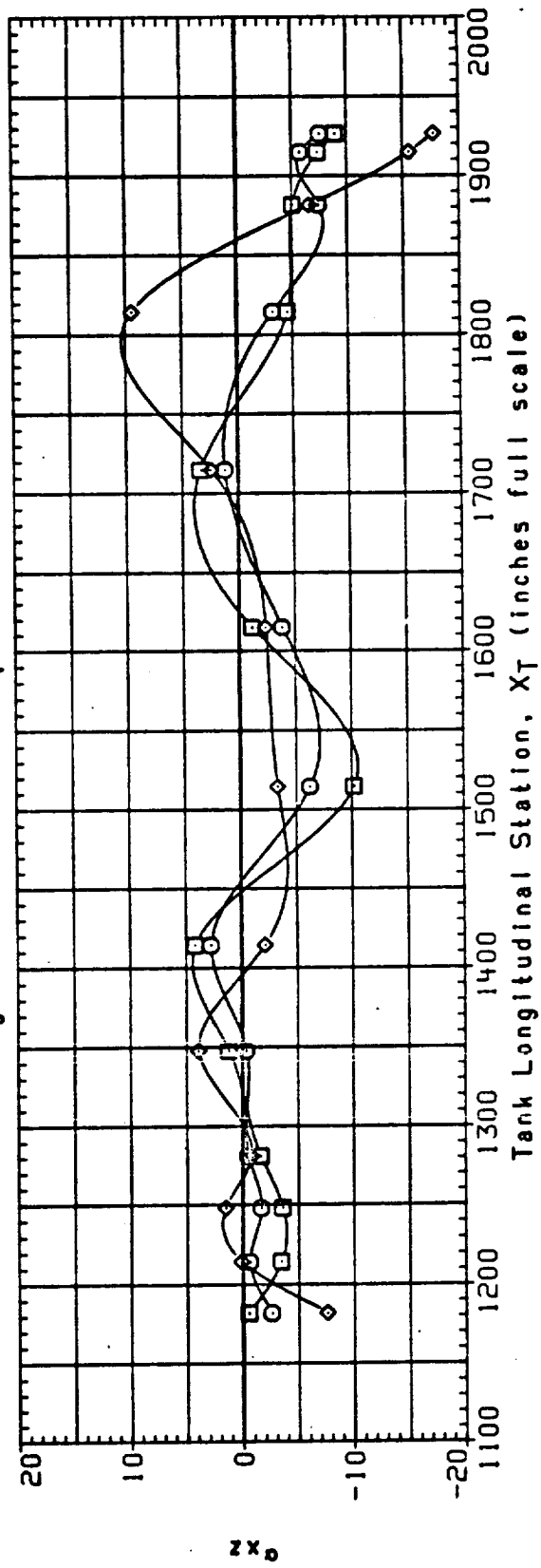
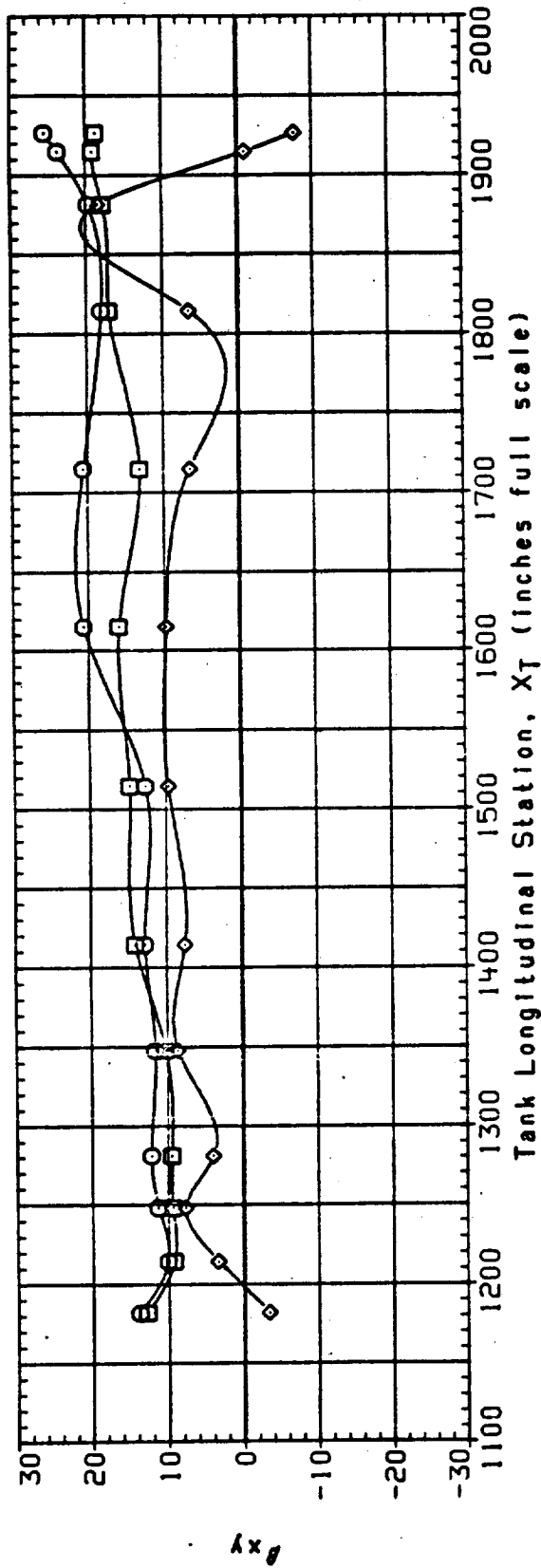


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(ALPHA = -.50

DATA SET	SYMBOL	CONFIGURATION	THETAP	BETA	MACH	19-ELV	OB-ELV
F3V163	○	1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	2.000	10.000	-5.000
F3V263	□	1A190B, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	2.000	10.000	-5.000
F3V363	◇	1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	2.000	10.000	-5.000

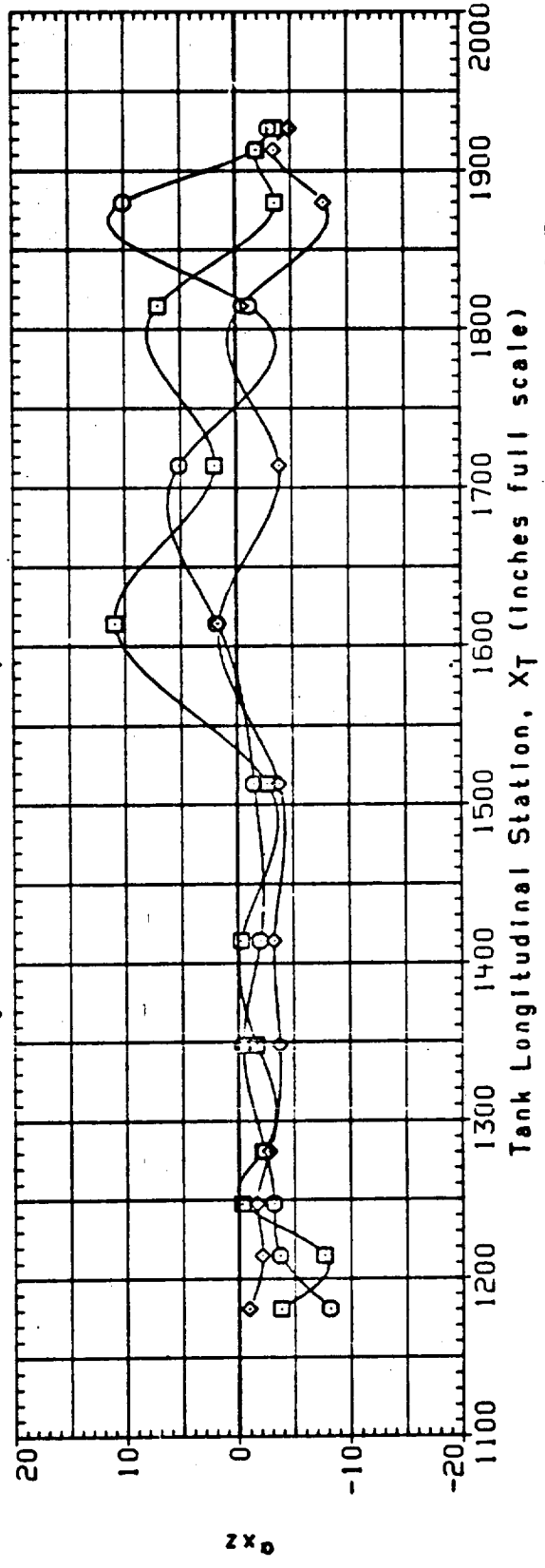
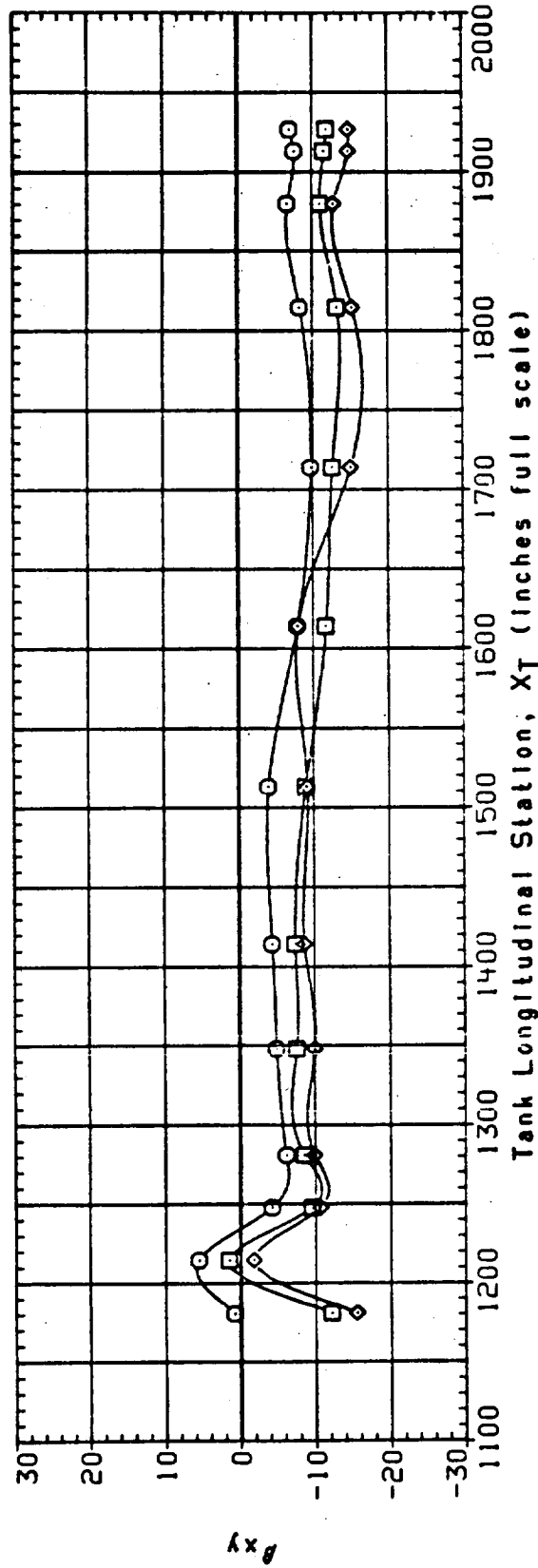


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE
VERSUS TANK STATION

(A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
F3V164	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	2.000	10.000	-5.000
F3V264	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	2.000	10.000	-5.000
F3V364	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	2.000	10.000	-5.000

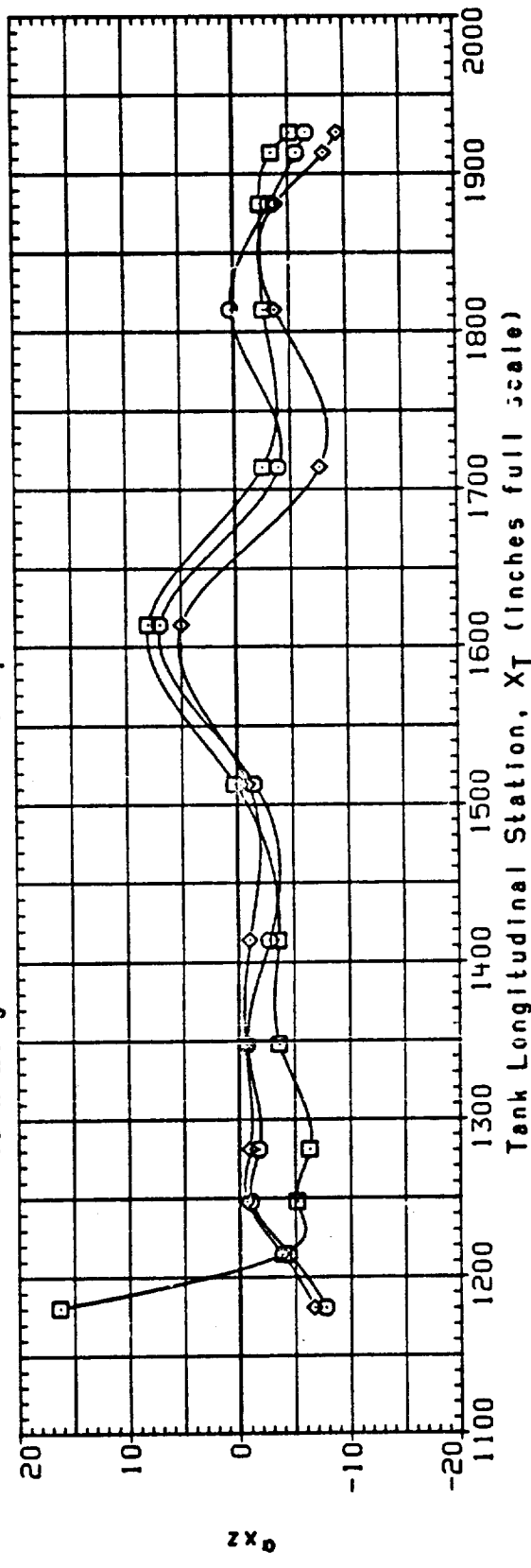
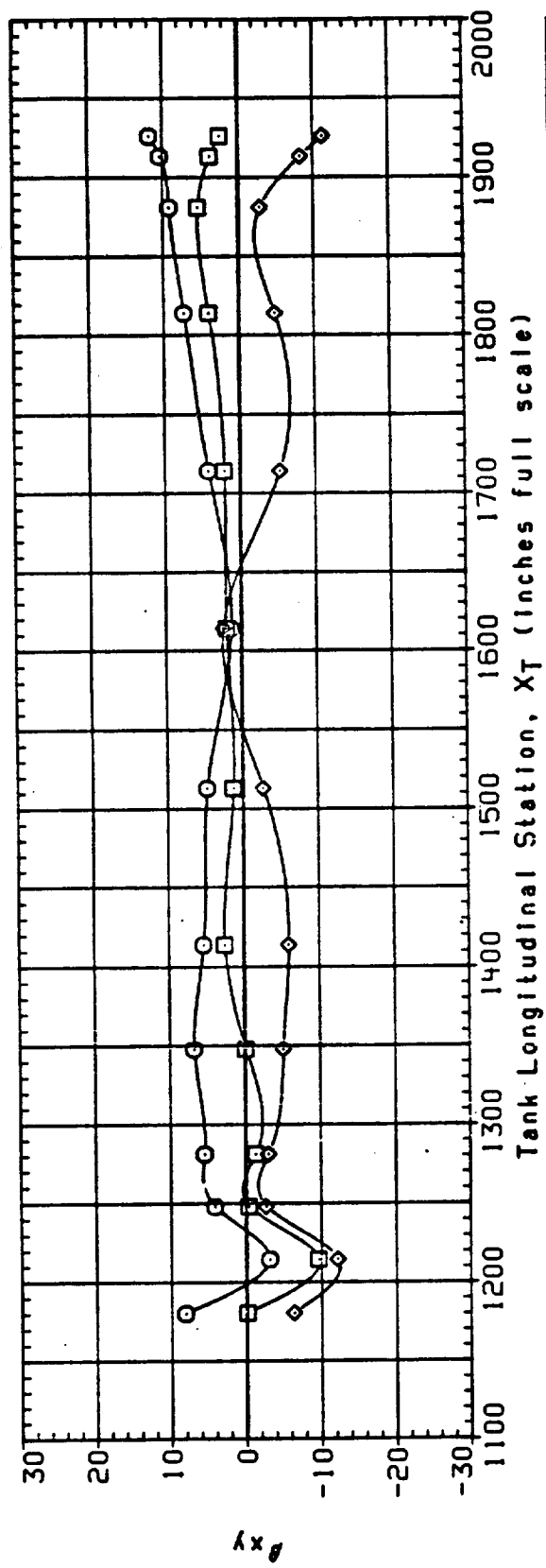


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

PHASE = .00

DATA SET SYMBOL		CONFIGURATION		BETA		MACH		IB-ELV		OB-ELV	
F3V165	○	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 311)	195.000	4.000	2.000	10.000	-5.000				
F3V265	□	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	2.000	10.000	-5.000				
F3V365	◇	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	2.000	10.000	-5.000				

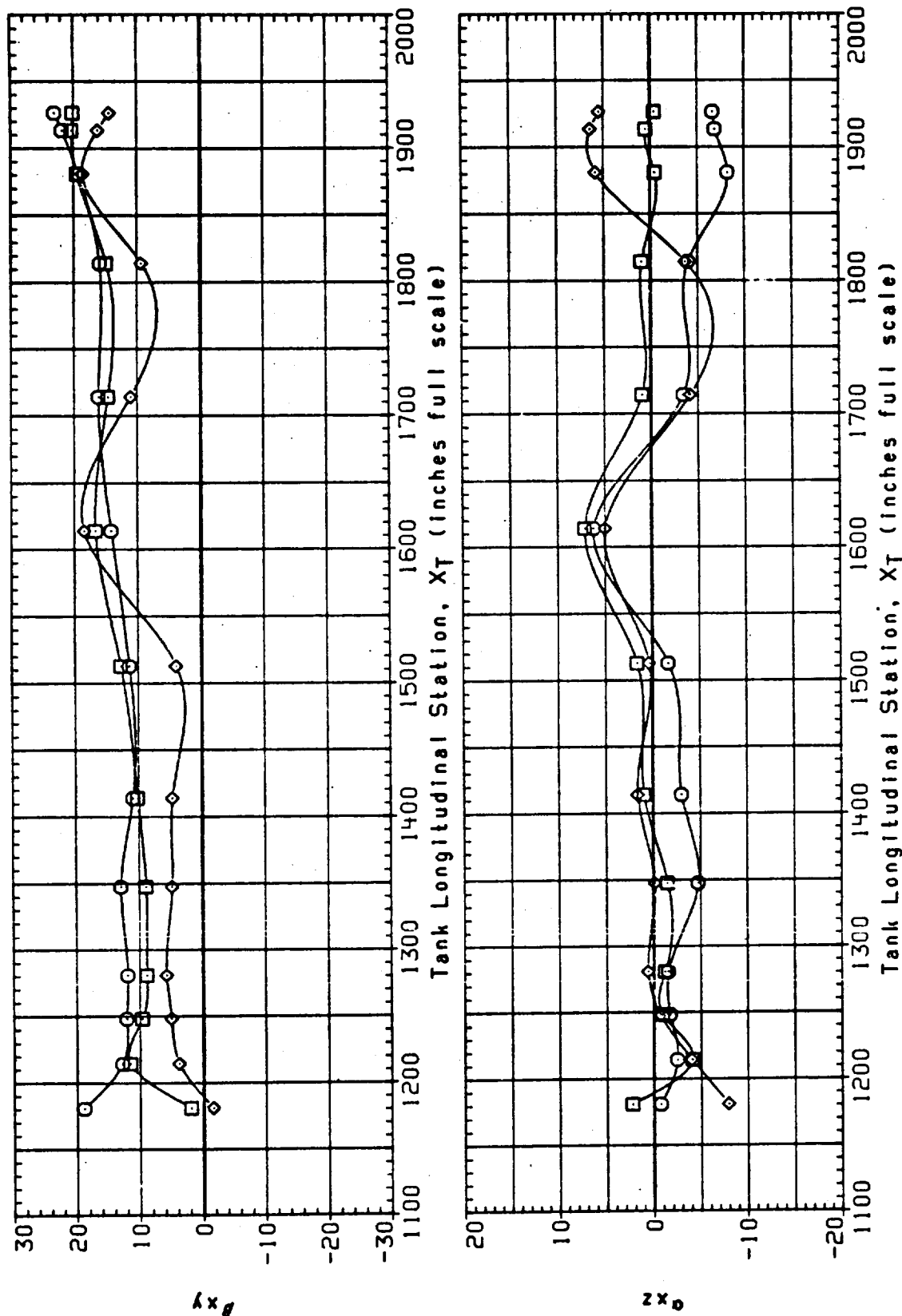


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	18-ELV	OB-ELV
F3V166	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	2.500	10.000	-5.000
F3V266	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	2.500	10.000	-5.000
F3V366	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	2.500	10.000	-5.000

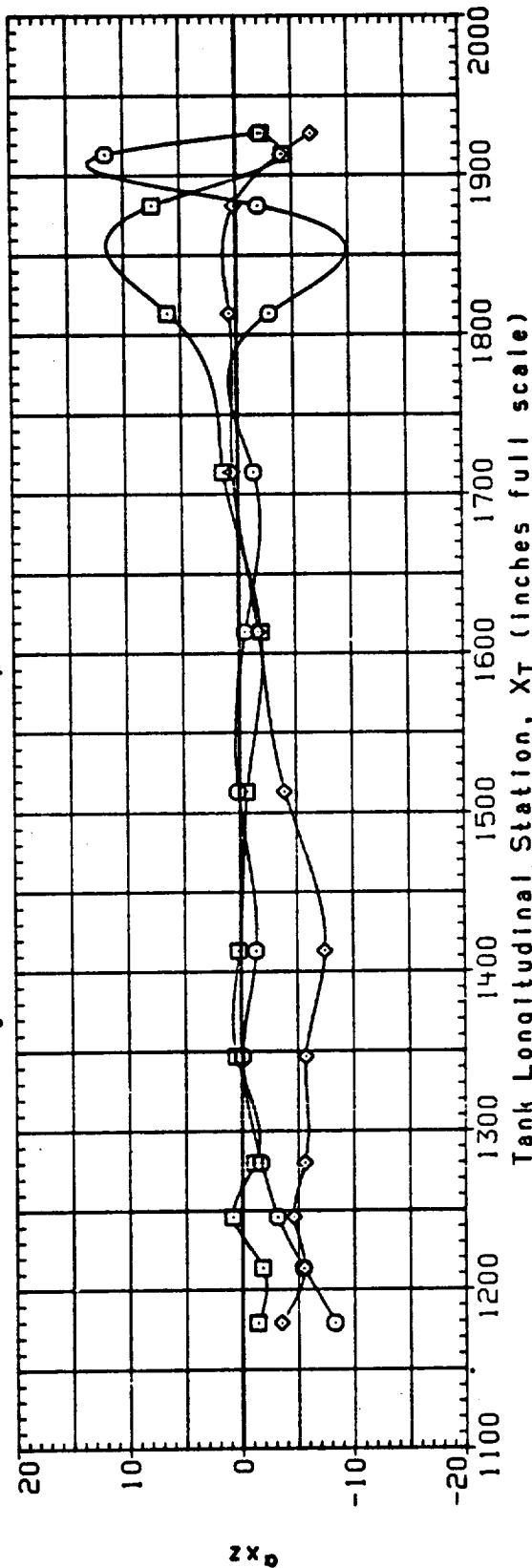
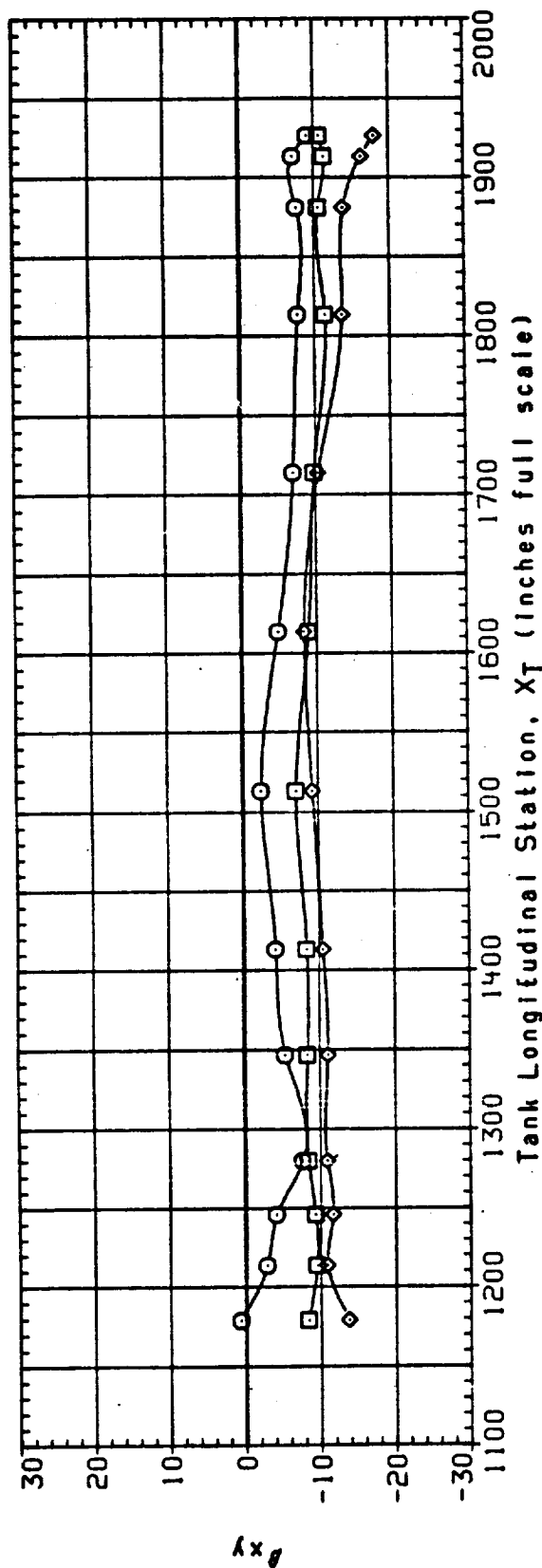


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) ALPHA = -4.00

DATA SET SYMBOL

F3V166
F3V266
F3V366

CONFIGURATION

IA1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)
IA1908, OTS, MID TRAVERSING PROBE (PROBE # 46)
IA1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)

THETAP

195.000
180.000
165.000

MACH

2.500
2.500
2.500

BETA

-4.000
-4.000
-4.000

OB-ELV

-5.000
-5.000
-5.000

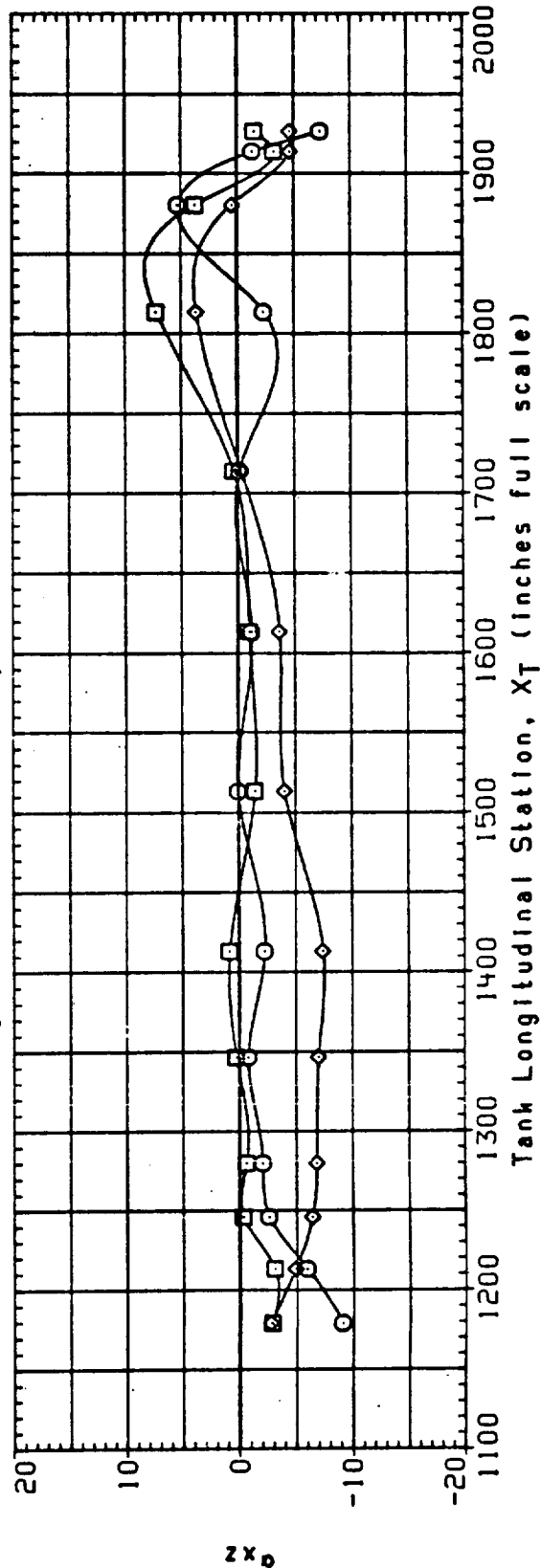
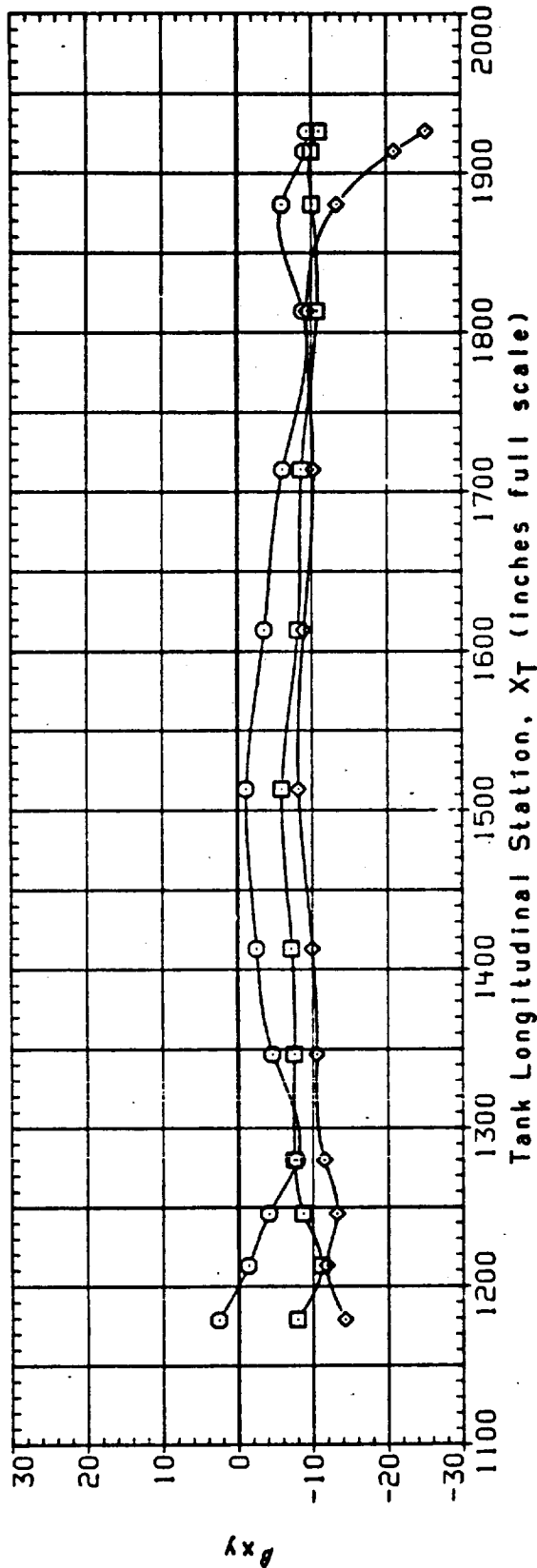


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(B) ALPHA = .00

DATA SET	SYMBOL	CONFIGURATION	THETA	BETA	MACH	IB-ELV	OB-ELV
F3V166	○	IA1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	-4.000	2.500	10.000	-5.000
F3V266	□	IA1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	-4.000	2.500	10.000	-5.000
F3V366	◇	IA1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	-4.000	2.500	10.000	-5.000

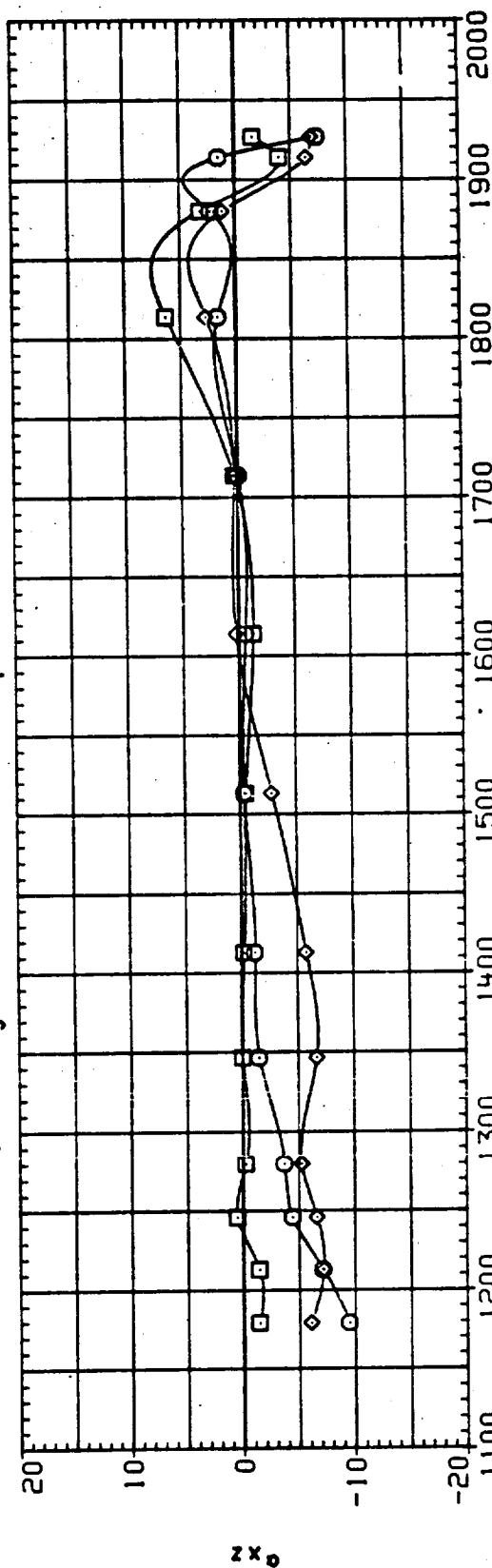
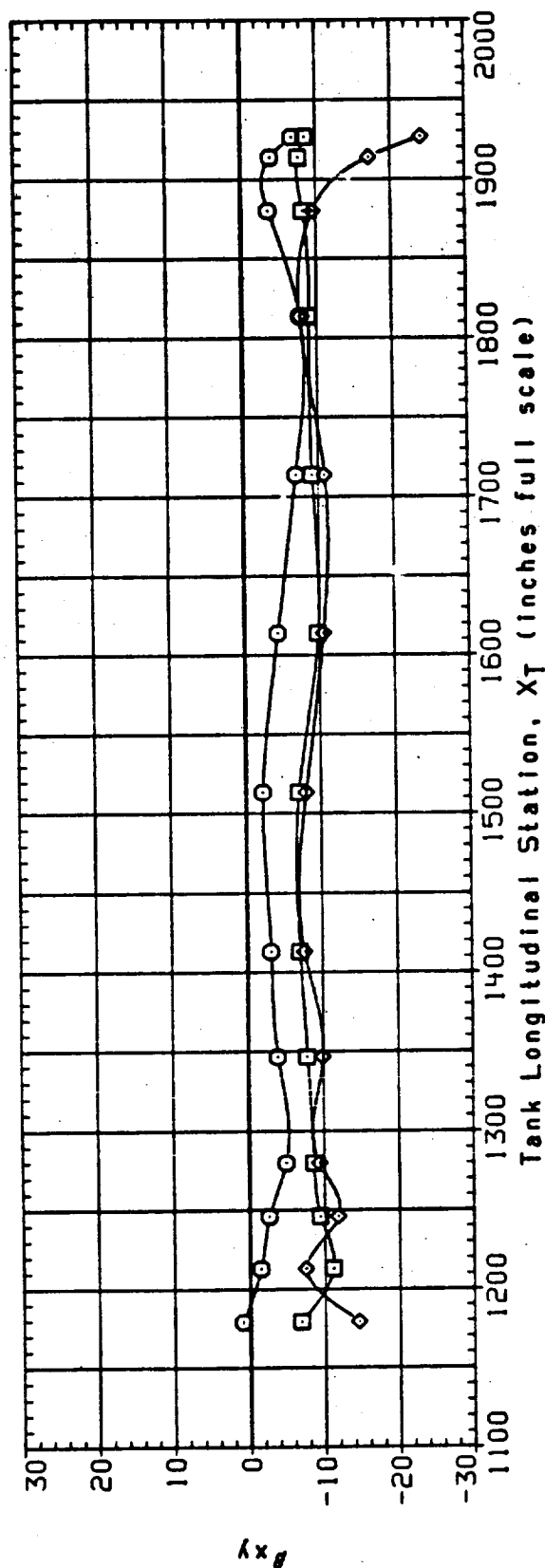


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE
VERSUS TANK STATION

'C) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
F3V167	IA1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	2.500	10.000	-5.000
F3V267	IA1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	2.500	10.000	-5.000
F3V367	IA1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	2.500	10.000	-5.000

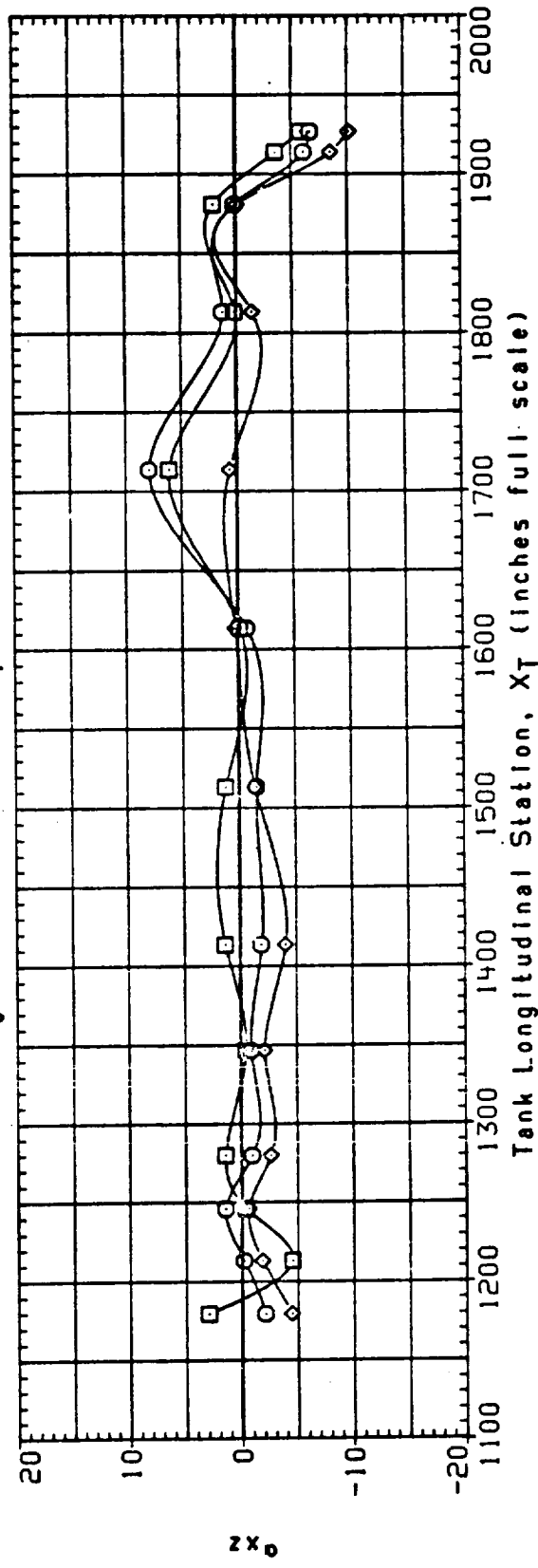
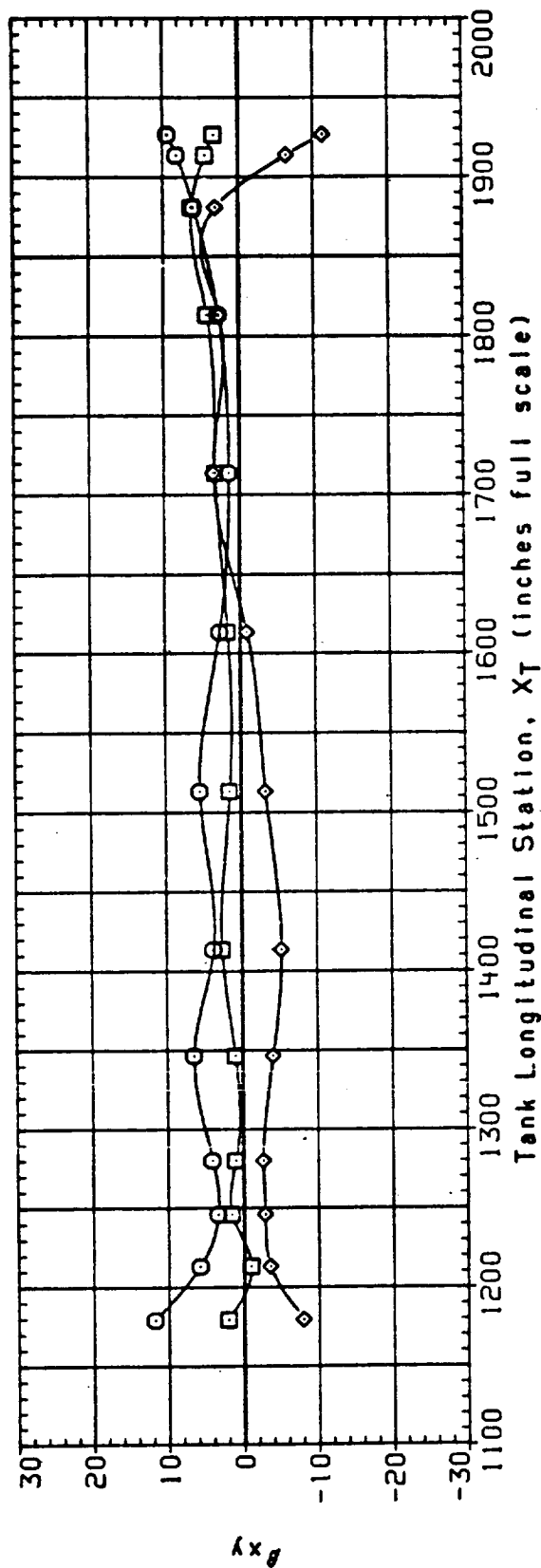


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) ALPHA = -4.00

DATA SET	SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
F3V167	○	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	2.500	10.000	-5.000
F3V267	□	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	2.500	10.000	-5.000
F3V367	◇	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	2.500	10.000	-5.000

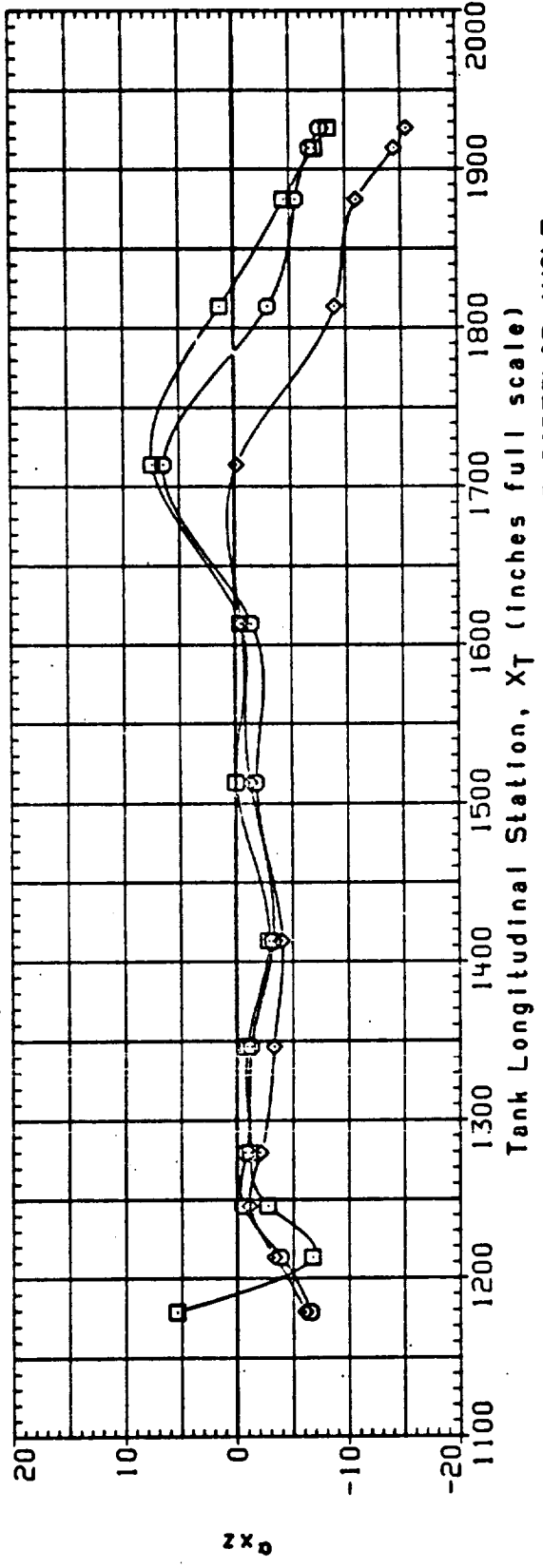
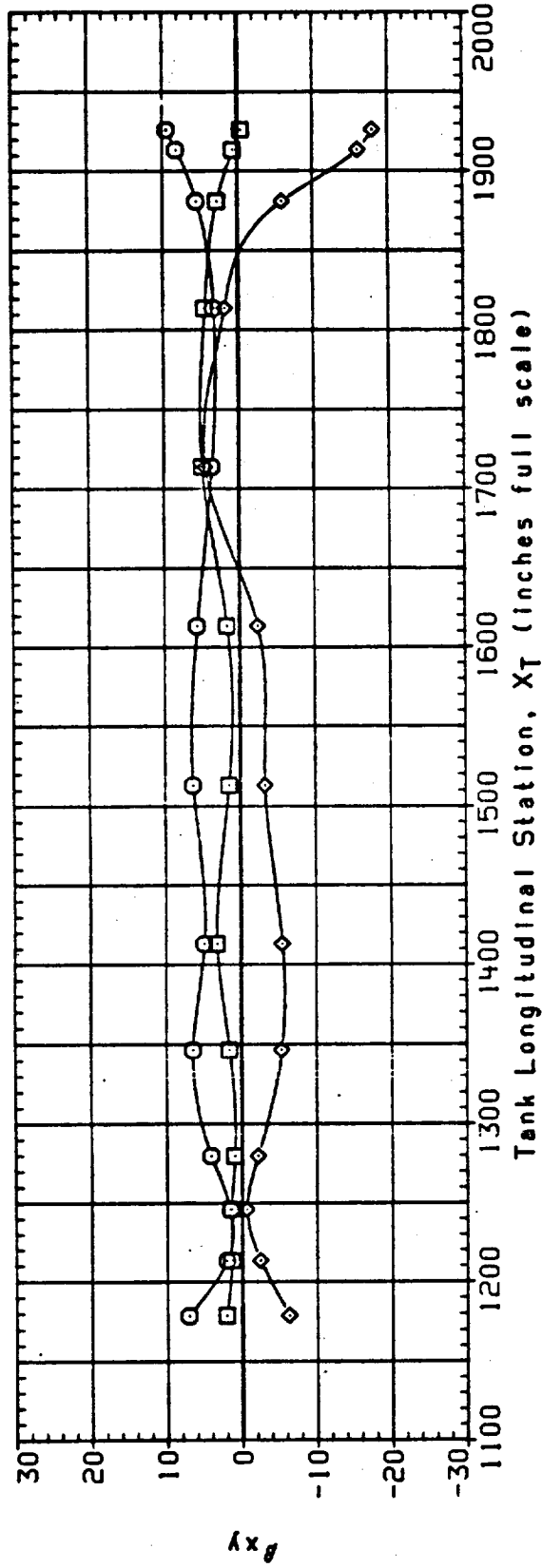


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

ALPHA = .00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	IB-ELV	OB-ELV
F3V167	IA1908, QTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	.000	2.500	10.000	-5.000
F3V267	IA1908, QTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	.000	2.500	10.000	-5.000
F3V367	IA1908, QTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	.000	2.500	10.000	-5.000

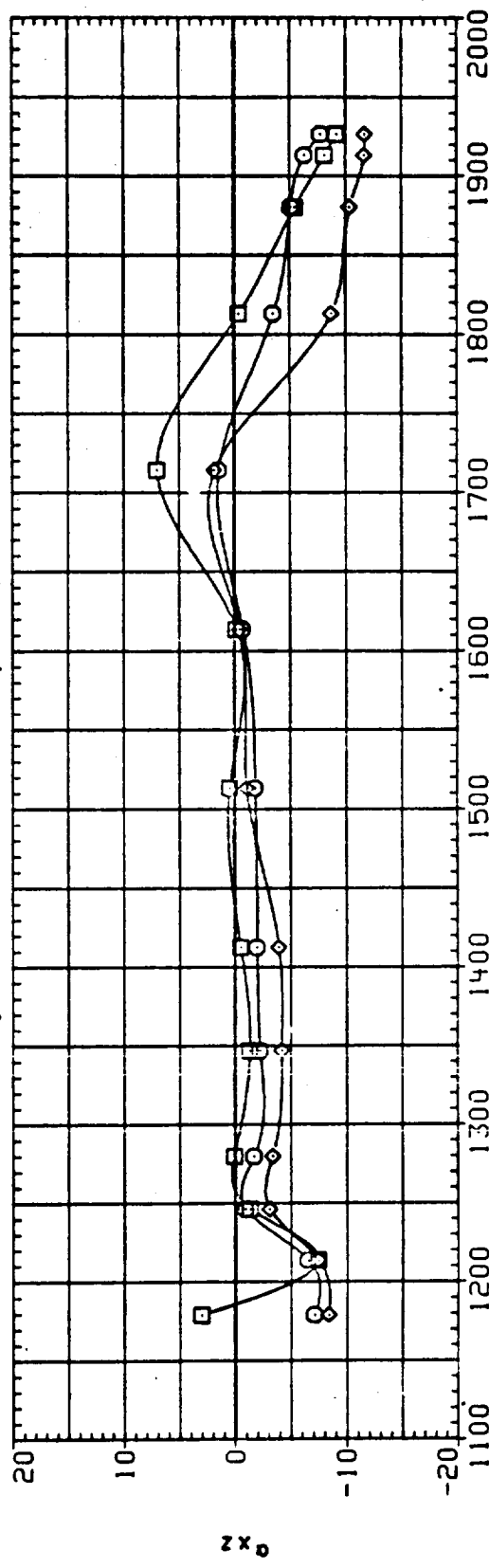
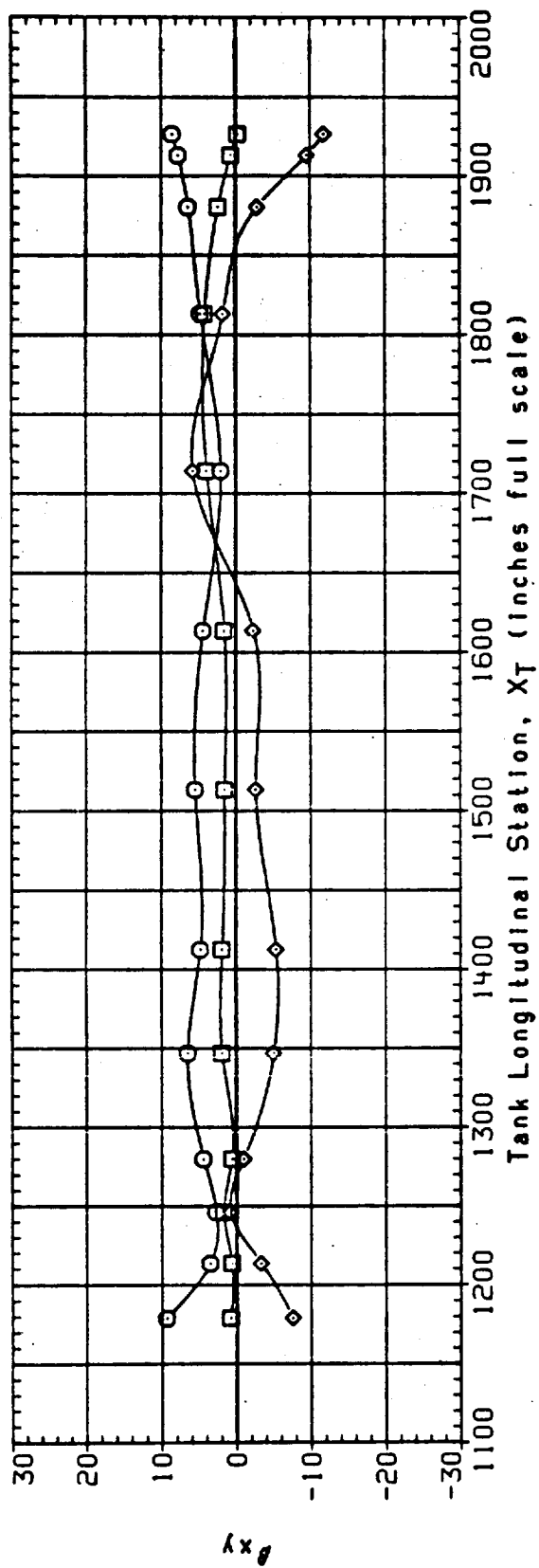


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(C) ALPHA = 4.00

DATA SET SYMBOL	CONFIGURATION	THETAP	BETA	MACH	18-ELV	08-ELV
F3V168	1A1908, OTS, LEFT TRAVERSING PROBE (PROBE # 31)	195.000	4.000	2.500	10.000	-5.000
F3V268	1A1908, OTS, MID TRAVERSING PROBE (PROBE # 46)	180.000	4.000	2.500	10.000	-5.000
F3V368	1A1908, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)	165.000	4.000	2.500	10.000	-5.000

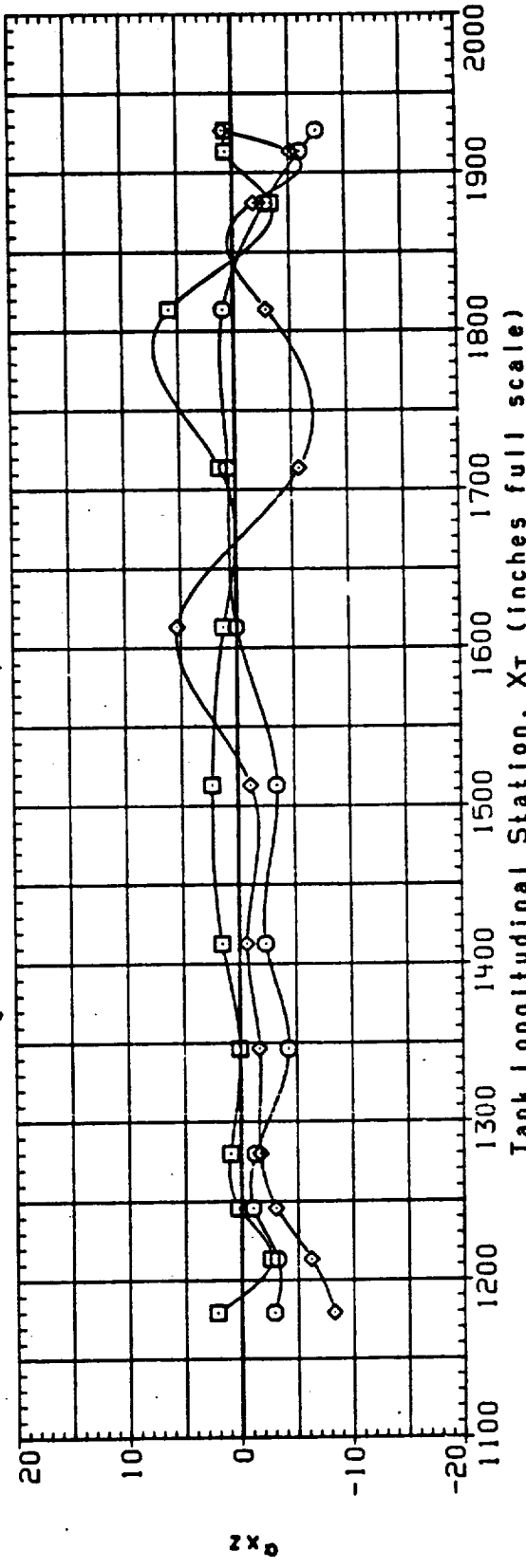
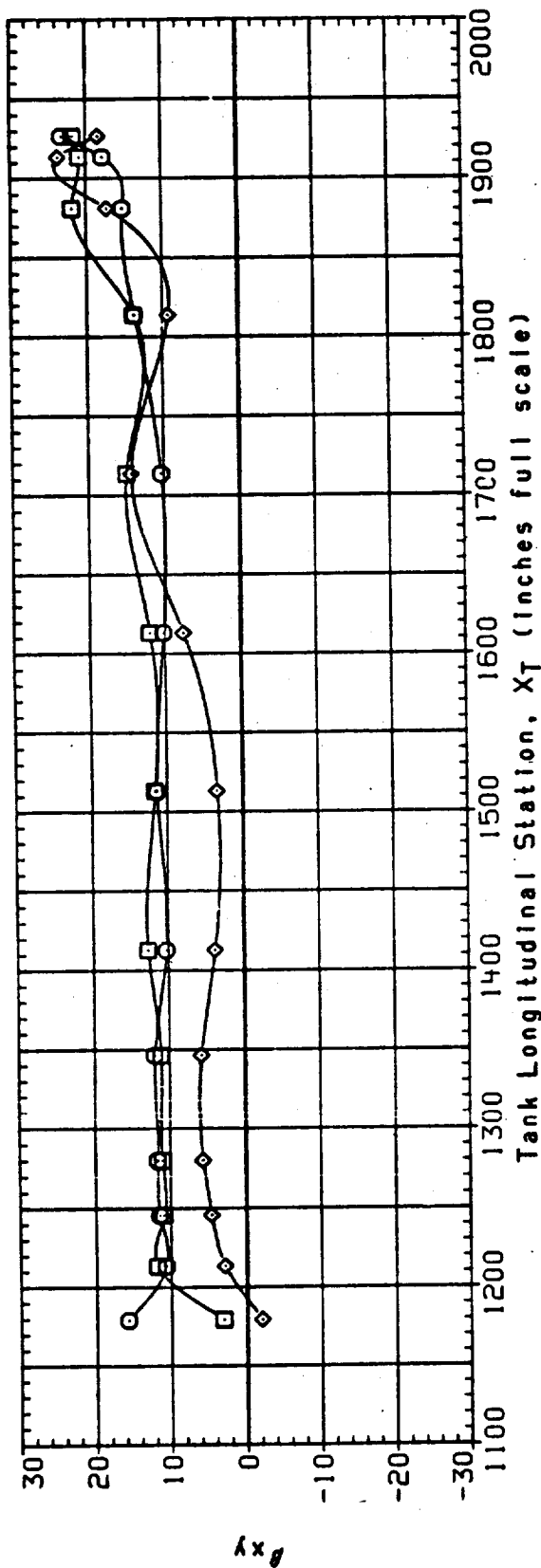


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(A) ALPHA = -4.00

DATA SET SYMBOL

F3V168
F3V268
F3V368

CONFIGURATION

IA190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31)
IA190B, OTS, MID TRAVERSING PROBE (PROBE # 46)
IA190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43)

THETAP BETA MACH IB-ELV OB-ELV
195.000 4.000 2.500 10.000 -5.000
180.000 4.000 2.500 10.000 -5.000
165.000 4.000 2.500 10.000 -5.000

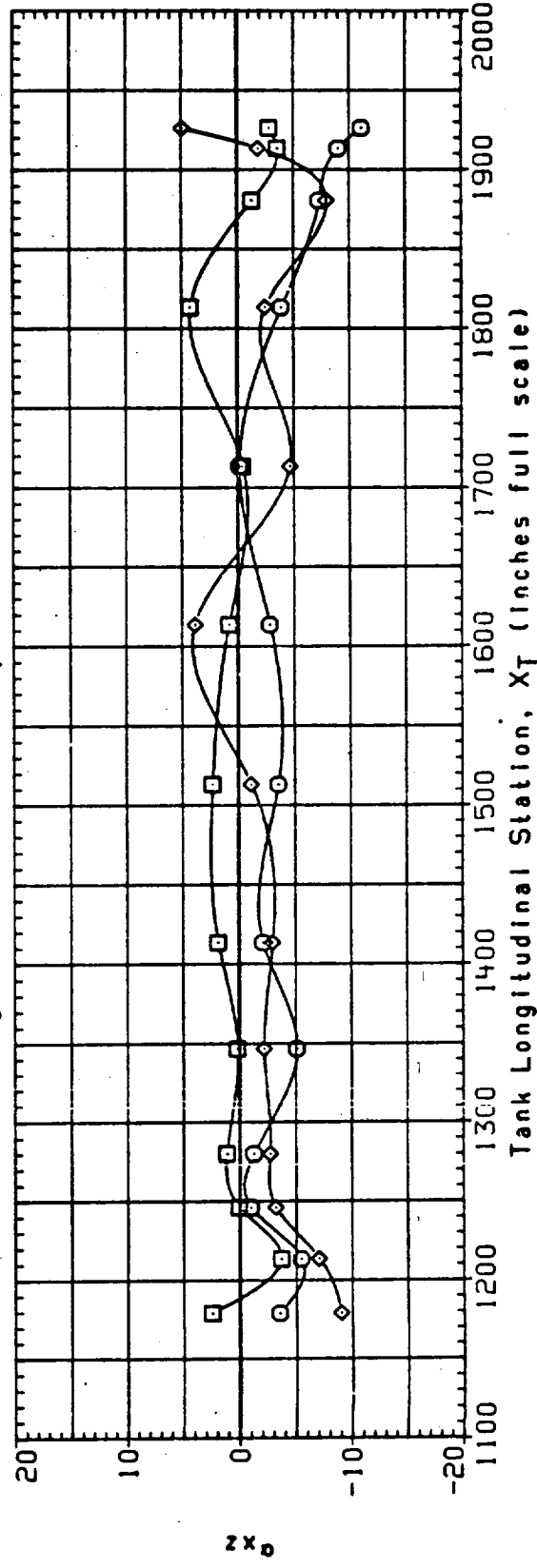
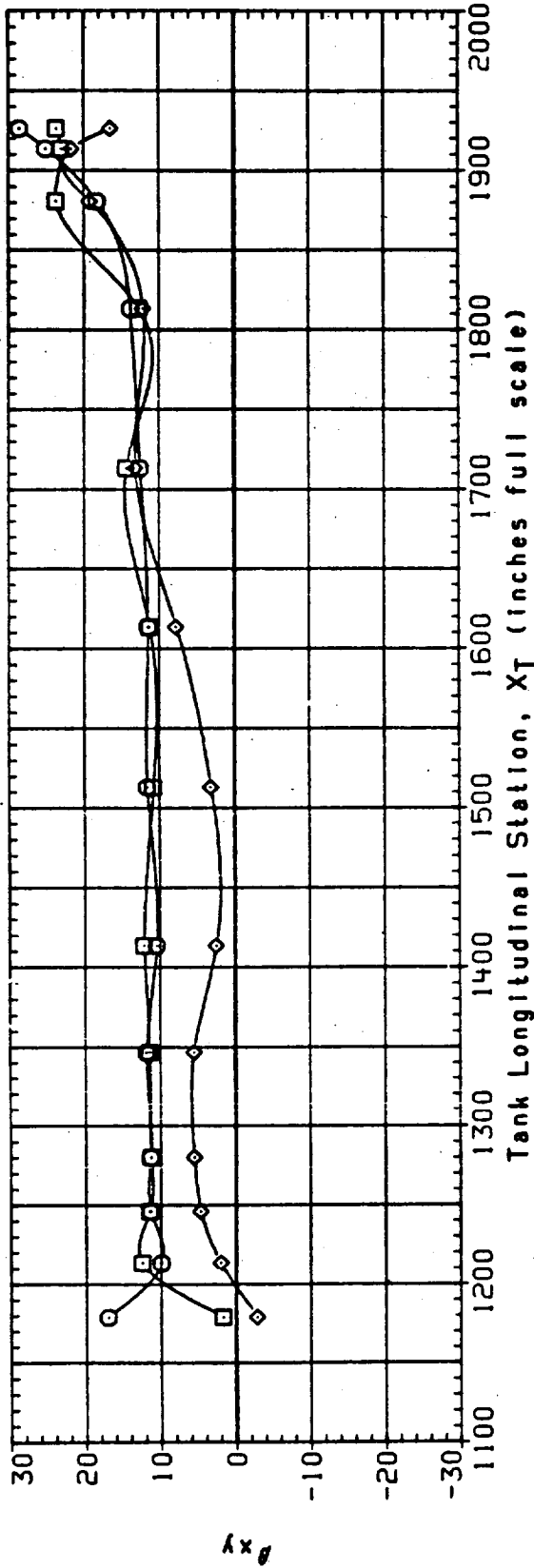


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(B) ALPHA = .00

C-4

DATA SET SYMBOL CONFIGURATION THETAP BETA MACH 1B-ELV OB-ELV

F3V168 1A190B, OTS, LEFT TRAVERSING PROBE (PROBE # 31) 195.000 4.000 2.500 10.000 -5.000

F3V268 1A190B, OTS, MID TRAVERSING PROBE (PROBE # 46) 180.000 4.000 2.500 10.000 -5.000

F3V368 1A190B, OTS, RIGHT TRAVERSING PROBE (PROBE # 43) 165.000 4.000 2.500 10.000 -5.000

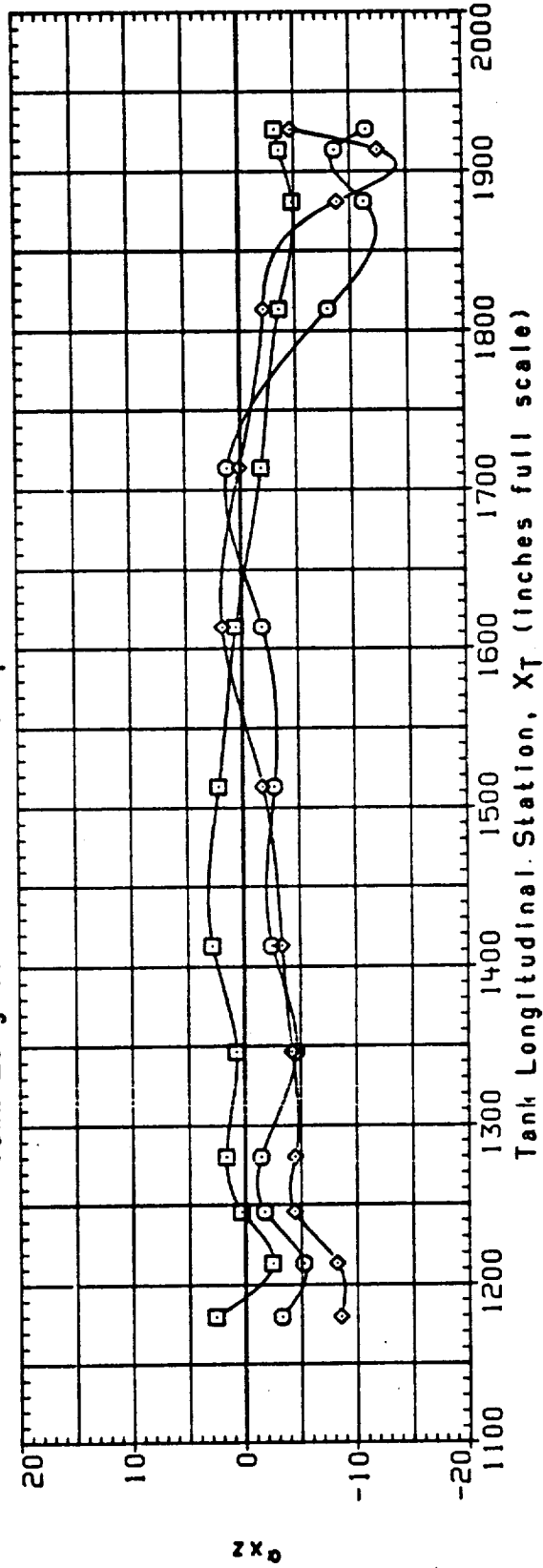
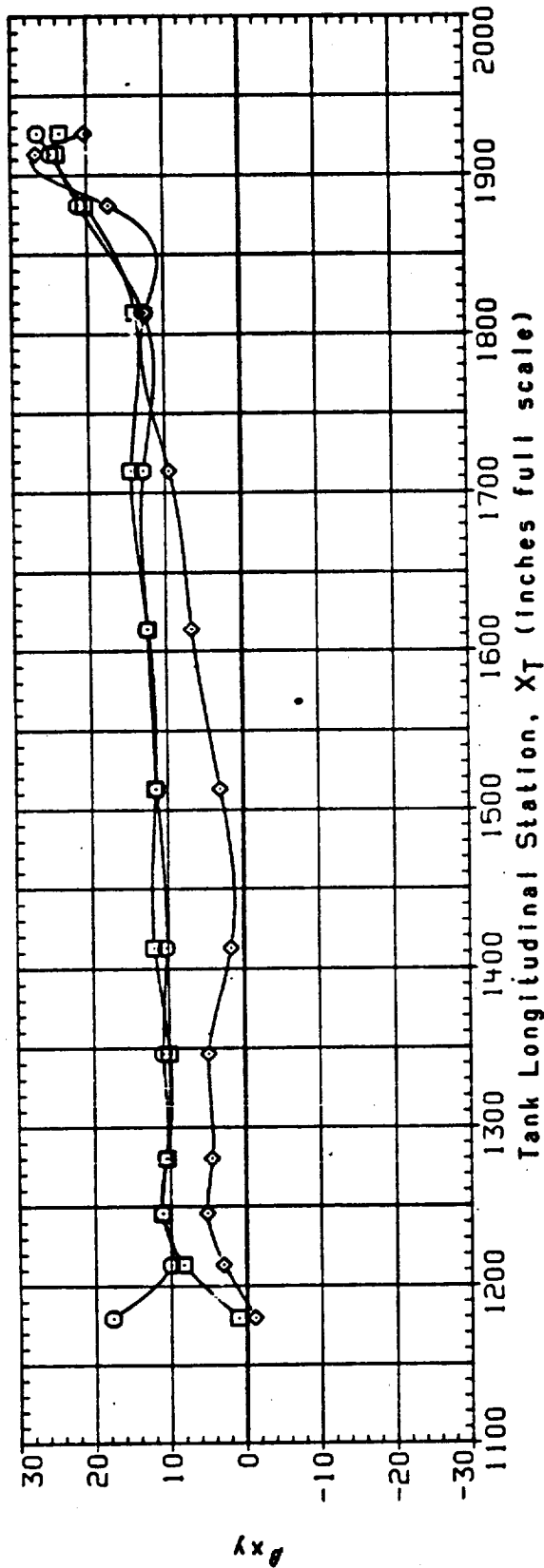


FIGURE 21. ET PROBE SURVEY - LOCAL ANGLE OF ATTACK AND SIDESLIP ANGLE VERSUS TANK STATION

(C) ALPHA = 4.00

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES	10.000	18-ELV	0.000
◇	-4.000	1050.000	.000	08-ELV	9.000				
□	4.000								

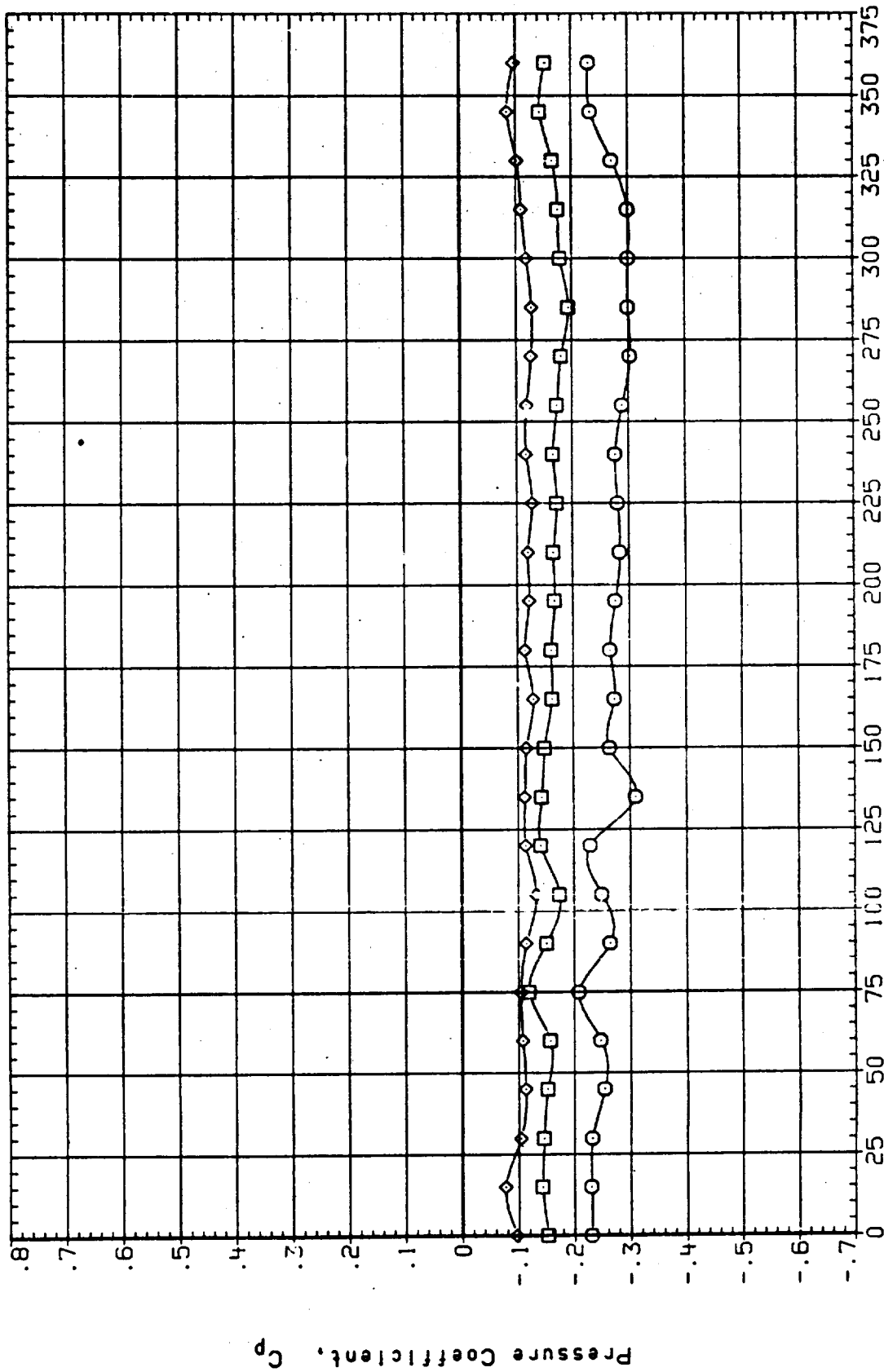


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL
 BETA
 -4.000
 .000
 4.000

XT
 1100.000

ALPHA
 .000

MACH
 OB-ELV

PARAMETRIC VALUES
 .500
 9.000

10.000
 .000

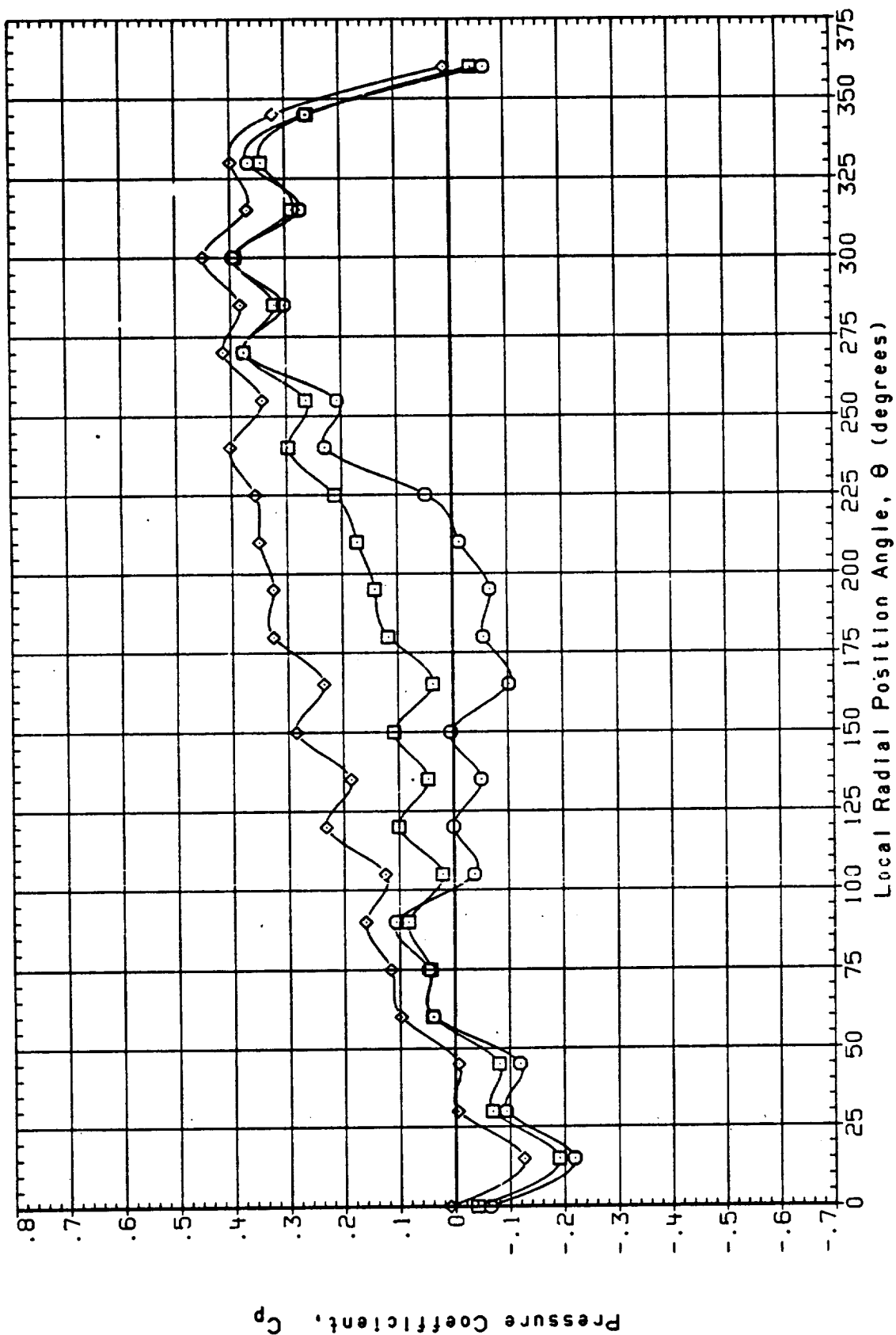


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL	BETA		XT		ALPHA		MACH		PARAMETRIC VALUES	
	-4.000	4.000	1150.000	.000			OB-ELV		.600	10.000
◇									9.000	.000
□										
○										

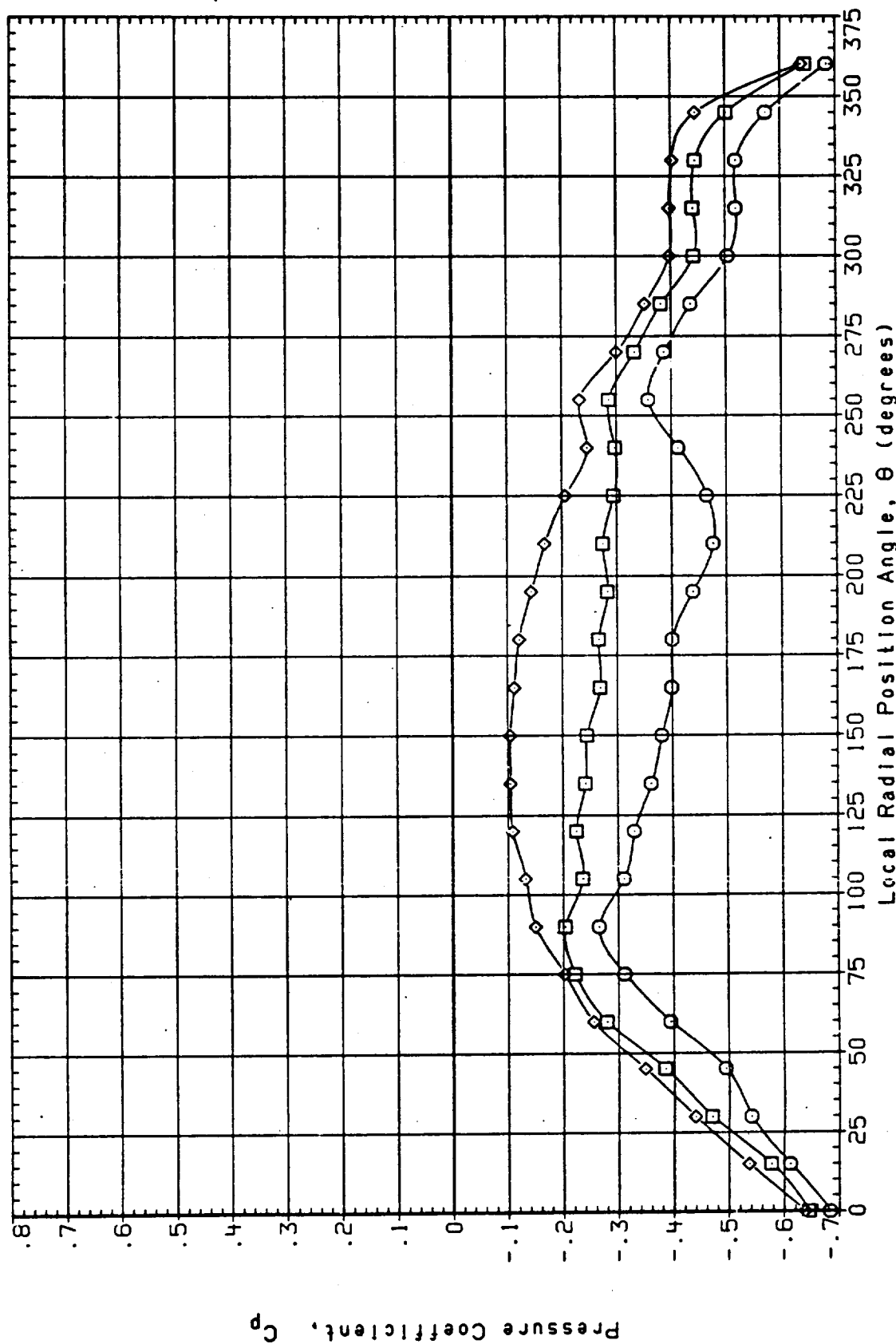


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 □ -4.000 1200.000 .000
 ◇ .000 .000 .000
 ○ 4.000

PARAMETRIC VALUES
 MACH 08-ELV
 .600 9.000 10.000
 IB-ELV GAP

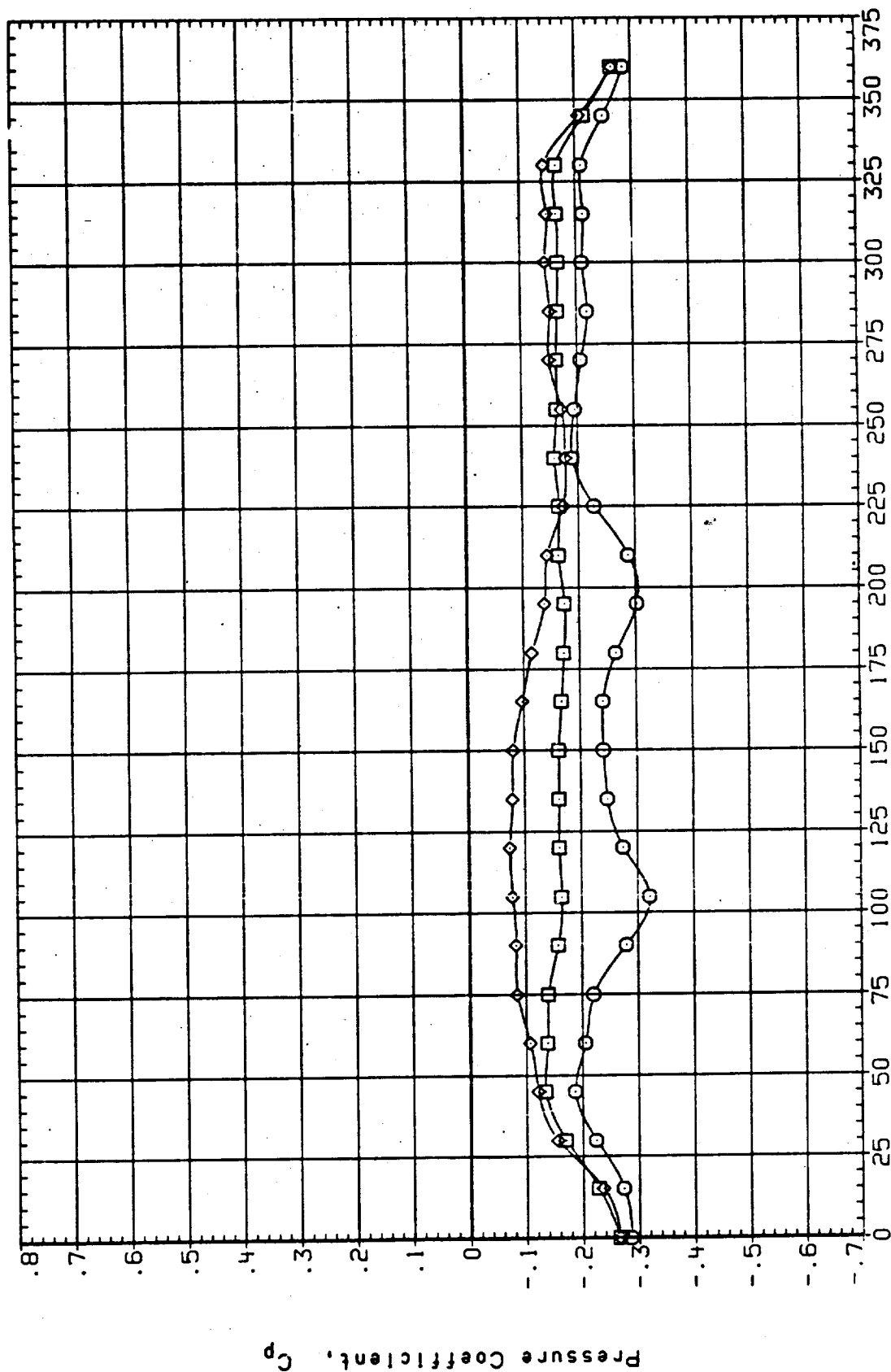


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, LO2 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 -4.000 1250.000 .000
 .000
 4.000

PARAMETRIC VALUES
 MACH 10.000
 OB-ELV 18-ELV
 9.000 0AP .000

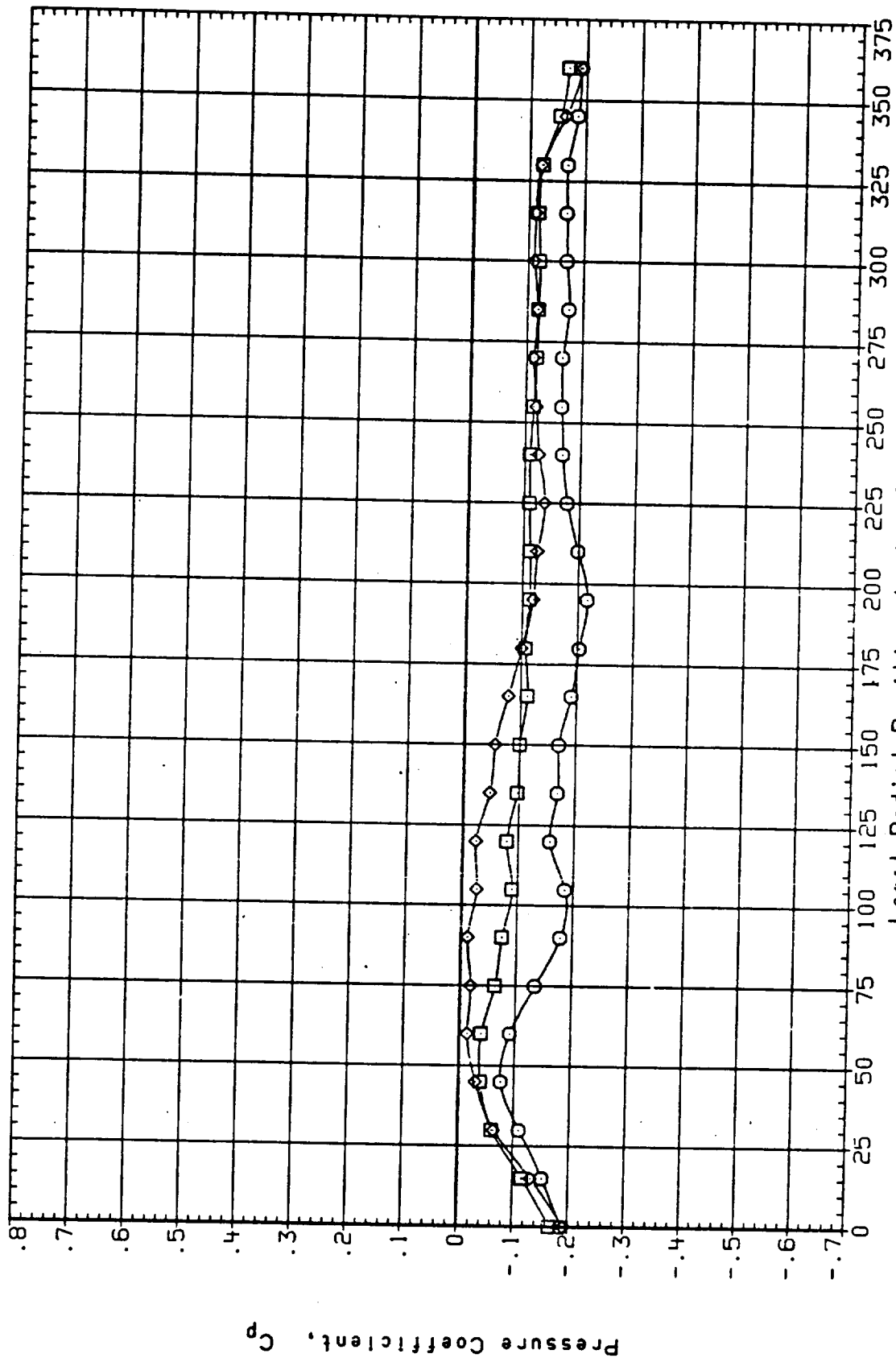


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	PARAMETRIC VALUES
□	-4.000	1300.000	.000	08-ELV	.600 1B-ELV 10.000
◇	.000				9.000 GAP .000

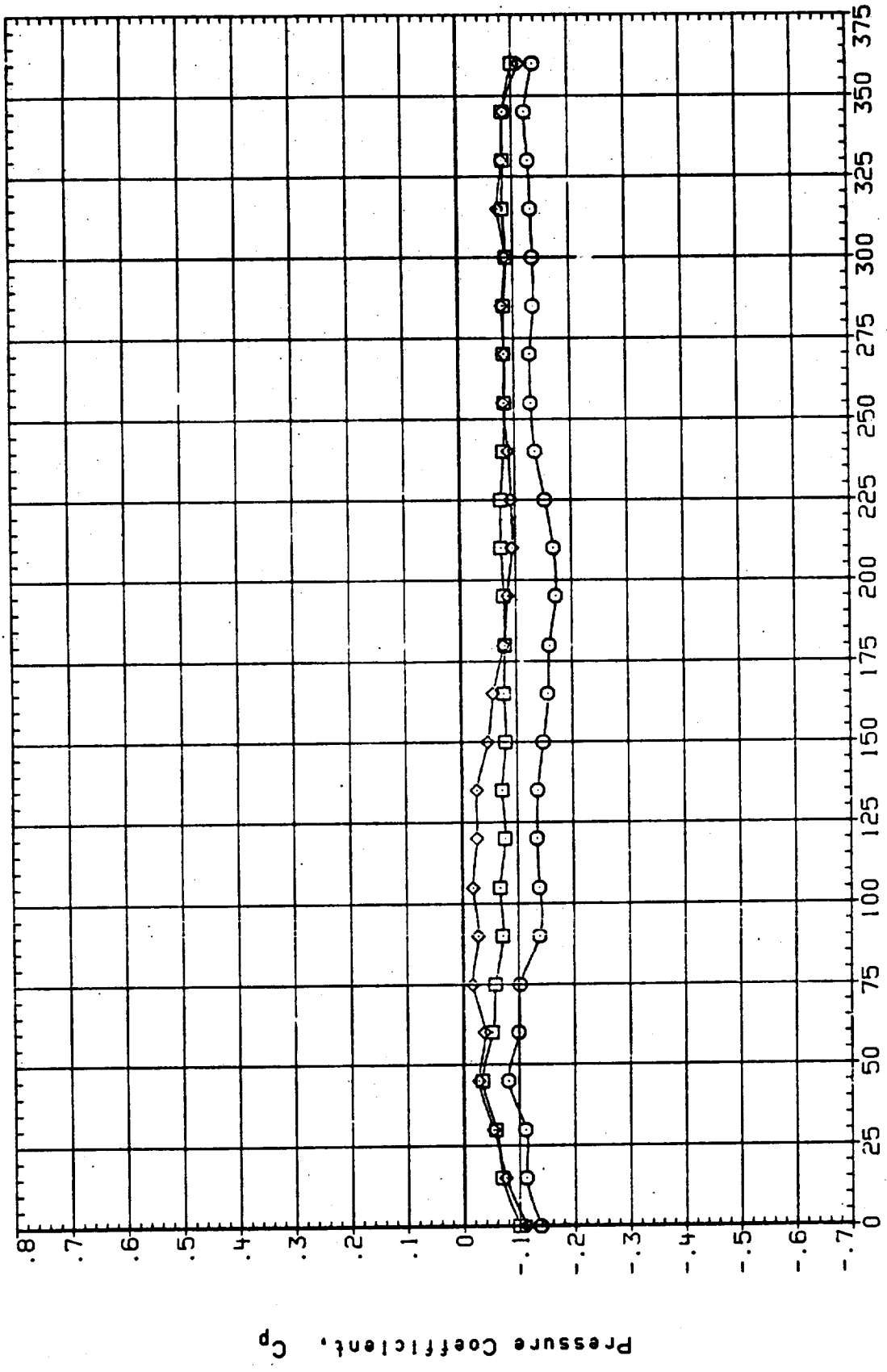


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
-4.000 1350.000 .000
4.000

PARAMETRIC VALUES
MACH 9.000
OB-ELV 10.000
IB-ELV .000
GAP

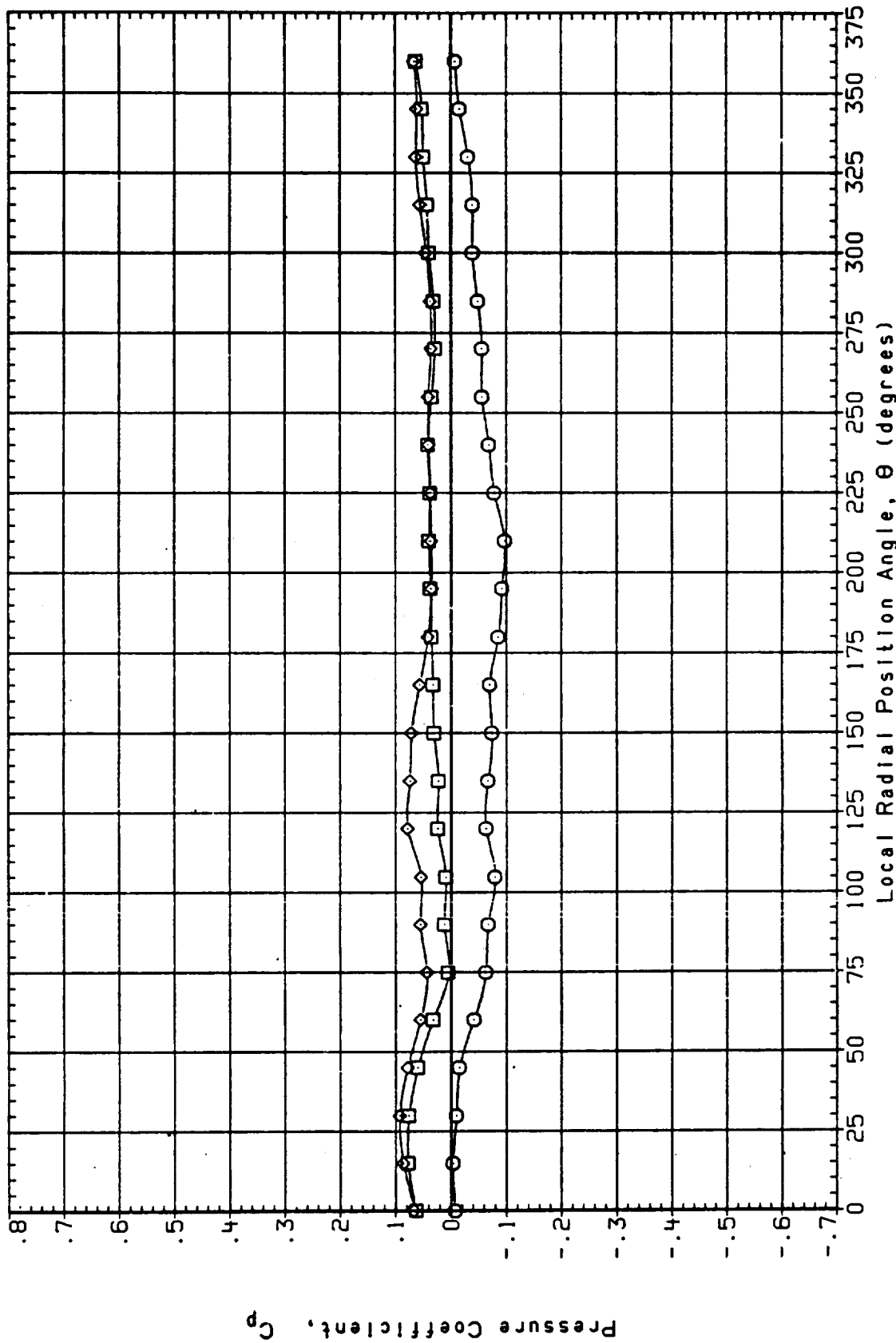


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, LO2 FEED LINE, RAMPS ON

SYMBOL
 BETA
 -4.000
 .000
 4.000

XT
 1400.000

ALPHA
 .000

PARAMETRIC VALUES
 MACH
 9.000

OB-ELV
 10.000
 GAP
 .000

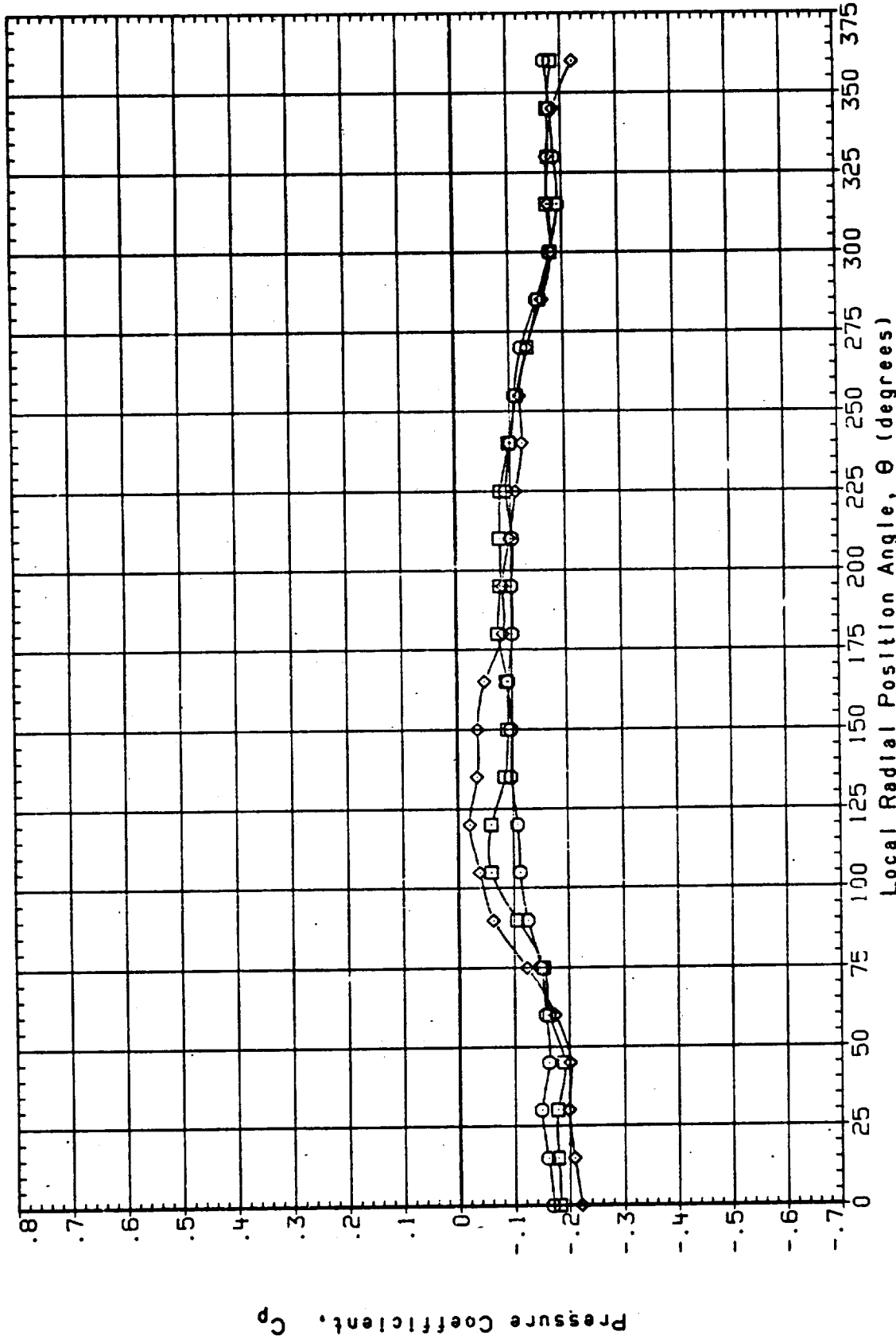


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 O -4.000 1450.000 .000
 □ 4.000

PARAMETRIC VALUES
 MACH 10.000
 OB-ELV 9.000 1B-ELV .000
 GAP

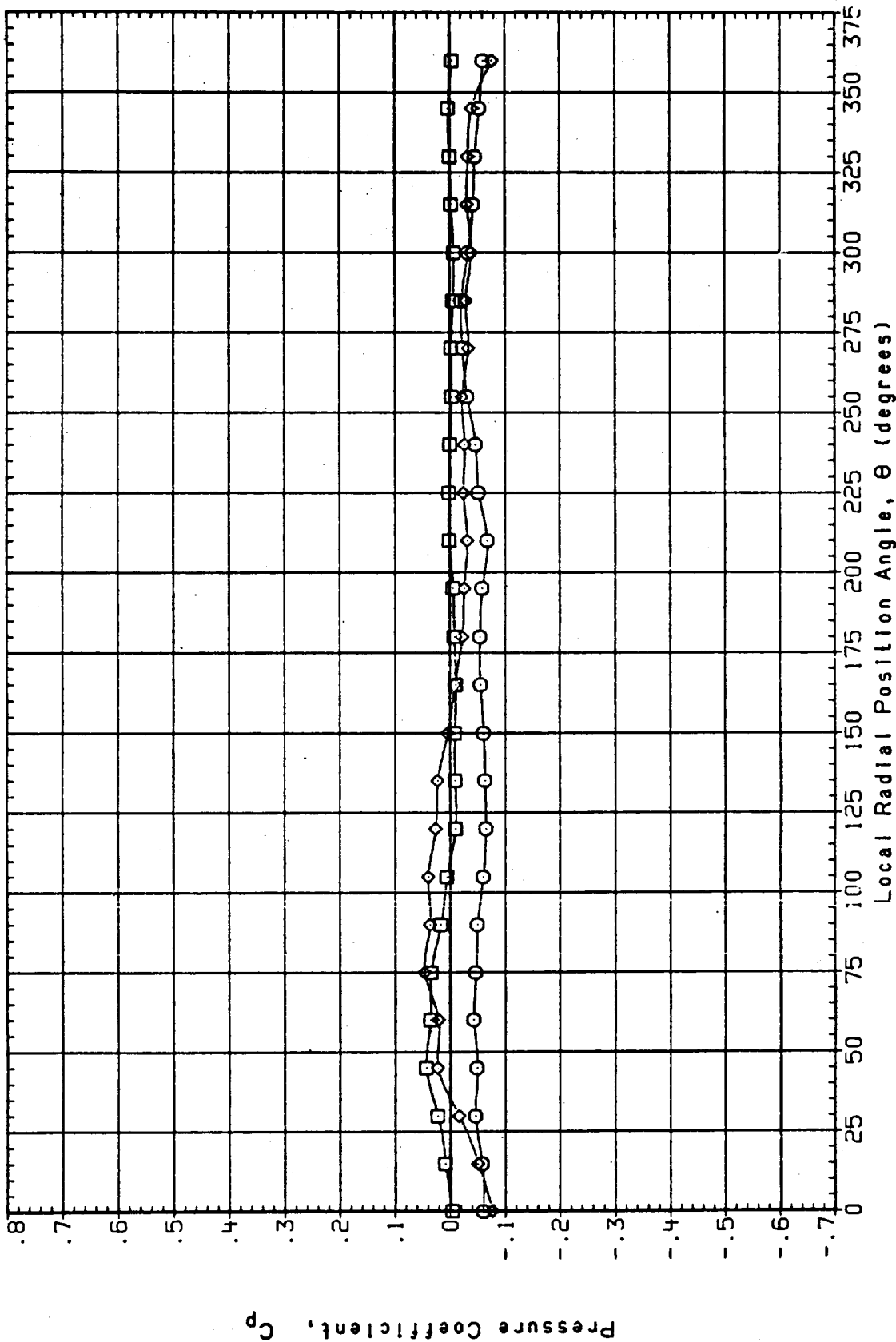


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 □ -4.000 1500.000 .000
 ○ .000
 ◇ 4.000

PARAMETRIC VALUES
 MACH 9.000 10.000
 OB-ELV 18-ELV
 GAP .000

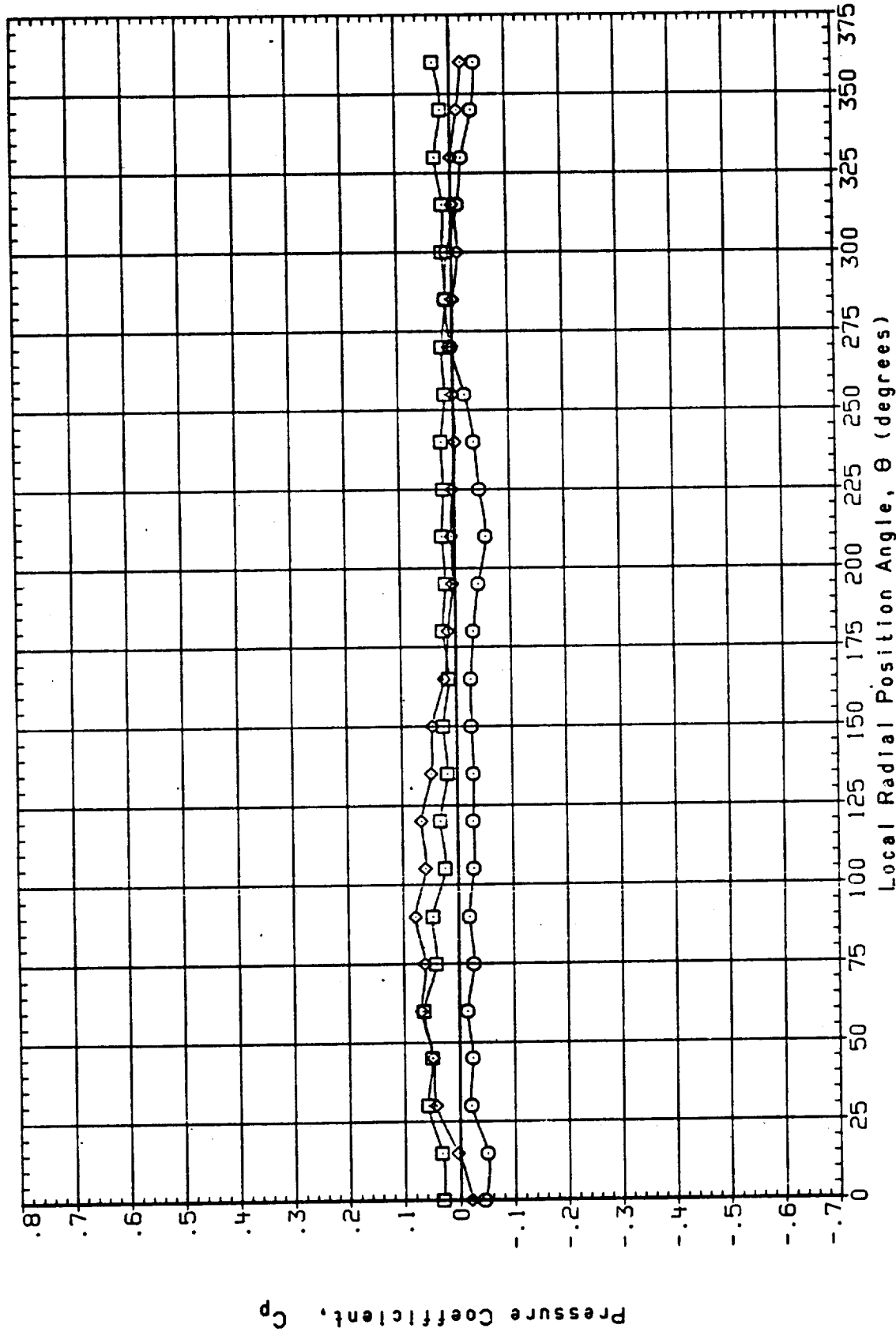


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES	IB-ELV	GAP	10.000	.000
□	-4.000	1600.000	.000	9.000	9.000					
◇	4.000									

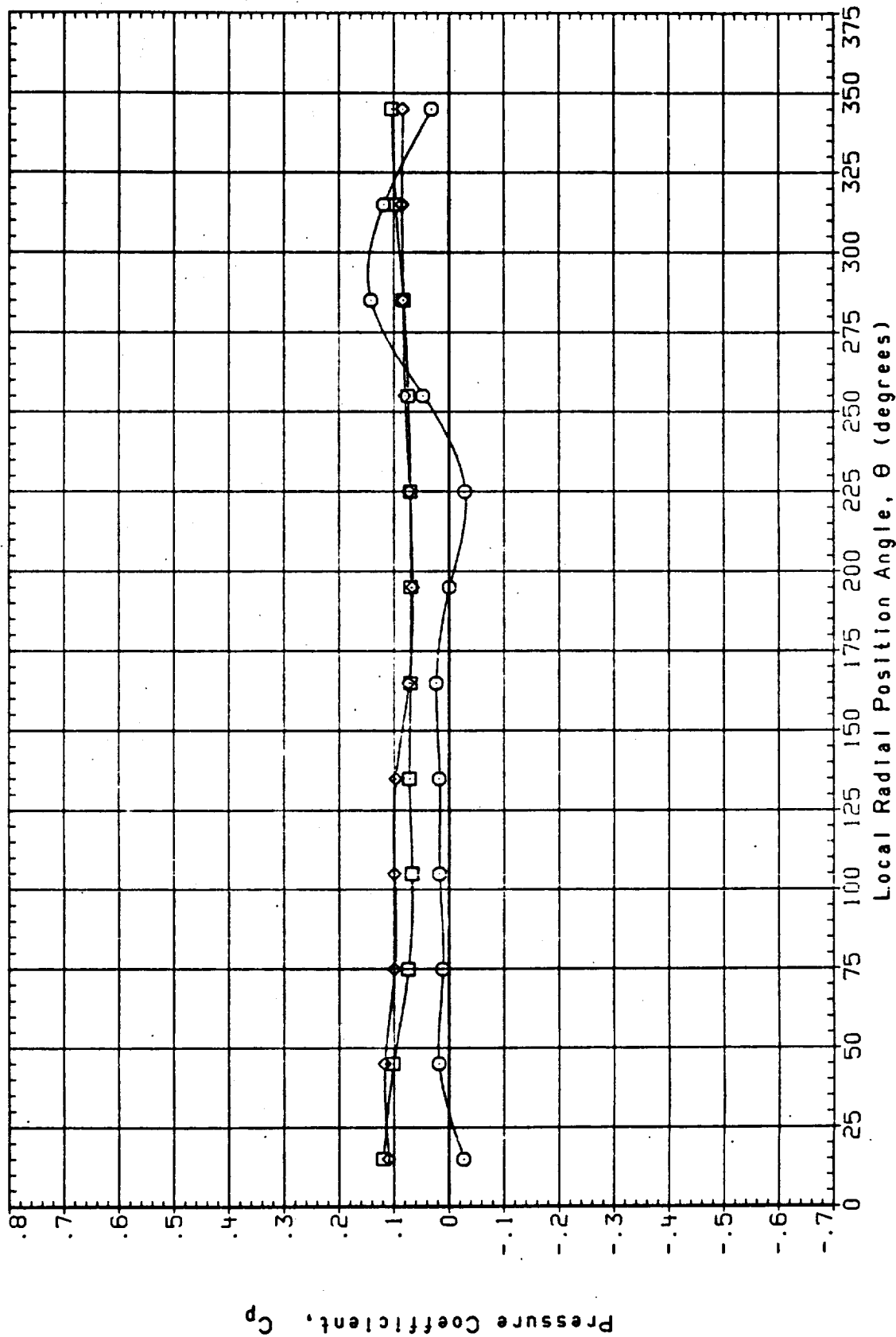


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 -4.000 1700.000 .000
 4.000

PARAMETRIC VALUES
 MACH 08-ELV 10.000
 9.000 19-ELV .000
 GAP

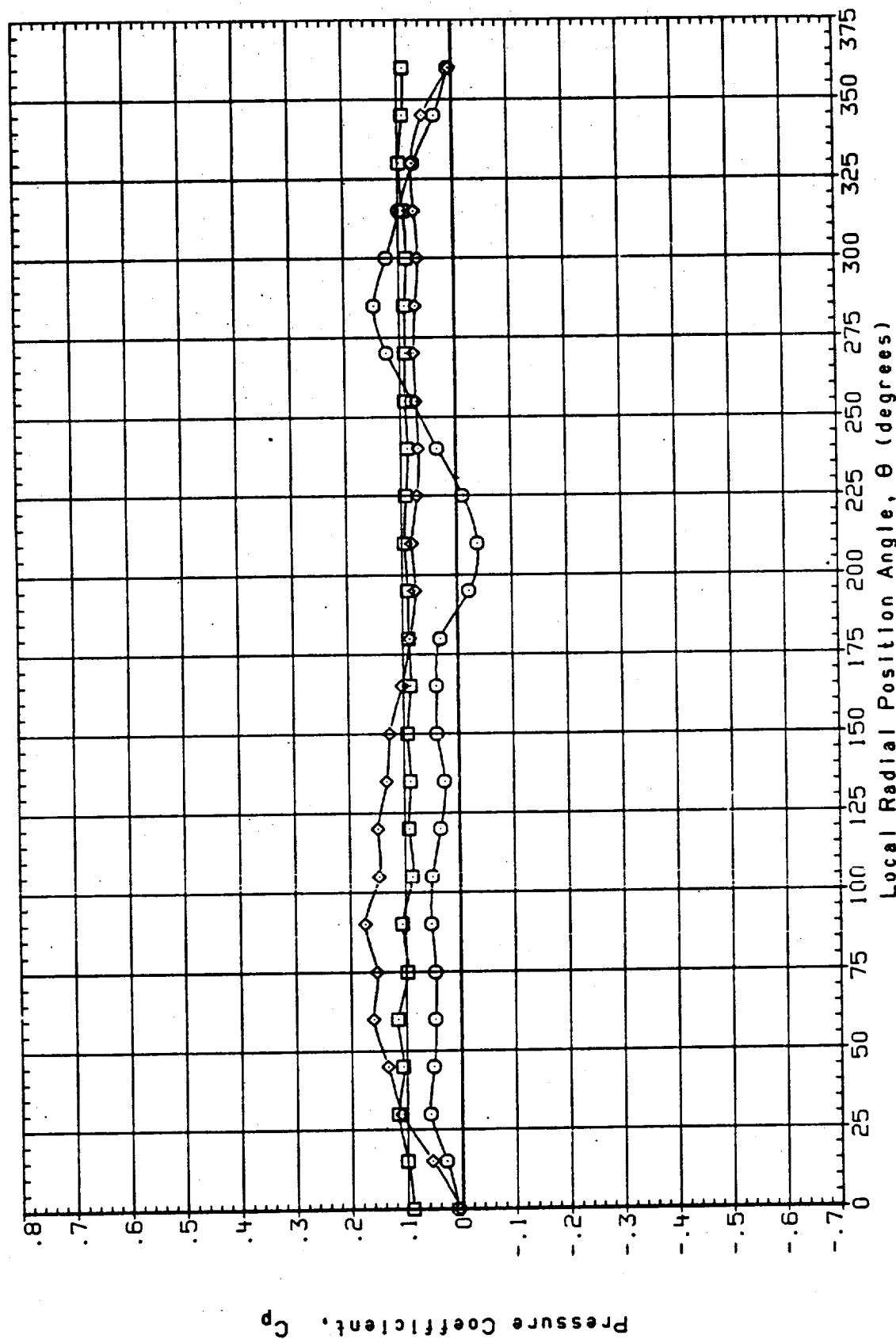


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL	BETA	XT	ALPHA
○	-4.000	1800.000	.000
□	.000		
◇	4.000		

PARAMETRIC VALUES

.500	18-ELV	10.000
9.000	GAP	.000

MACH
OB-ELV

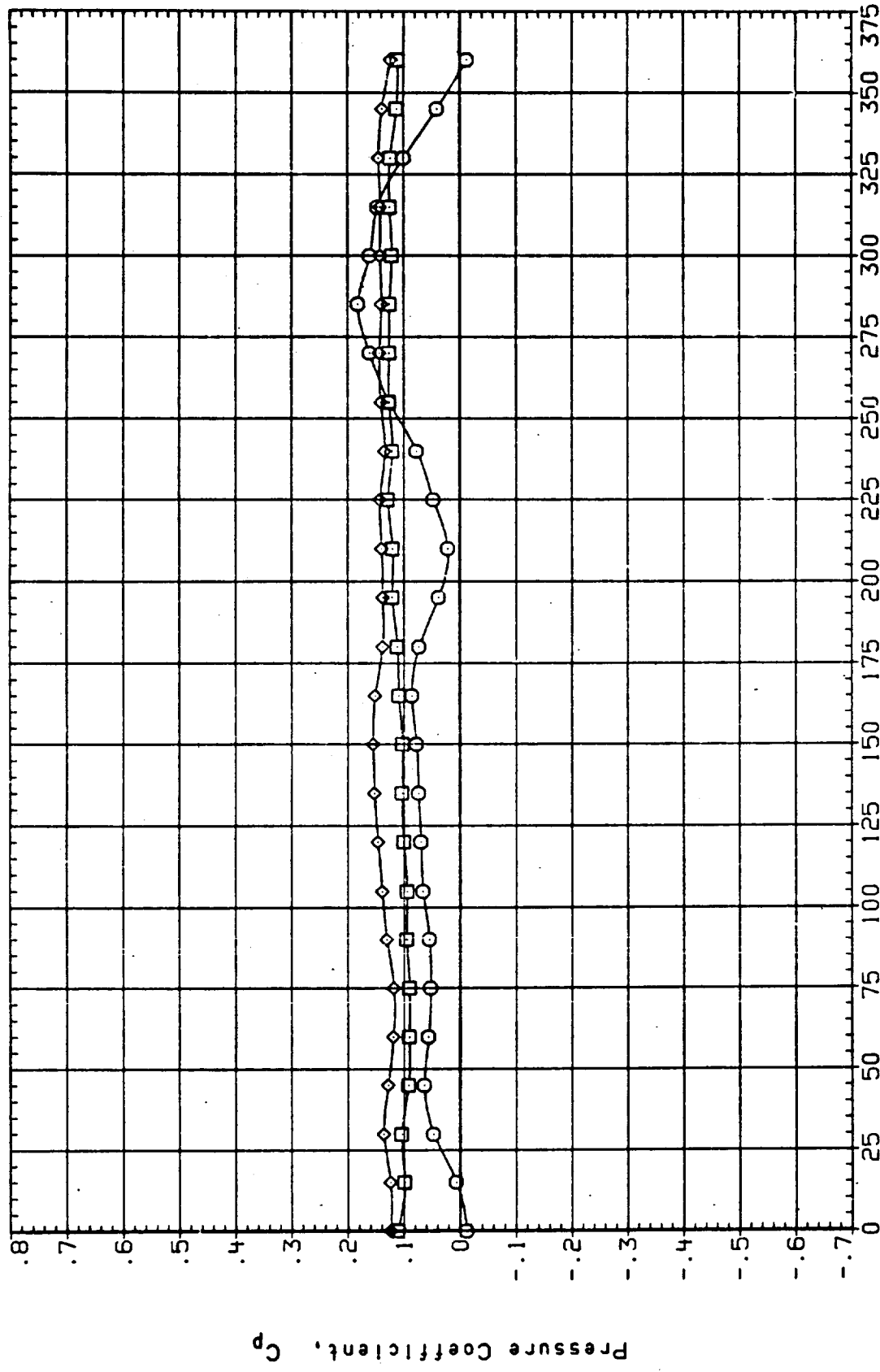


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE
Local Radial Position Angle, θ (degrees)

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 -4.000 1900.000 .000
 4.000

PARAMETRIC VALUES
 MACH 10.000
 OB-ELV 9.000
 IB-ELV .000
 GAP

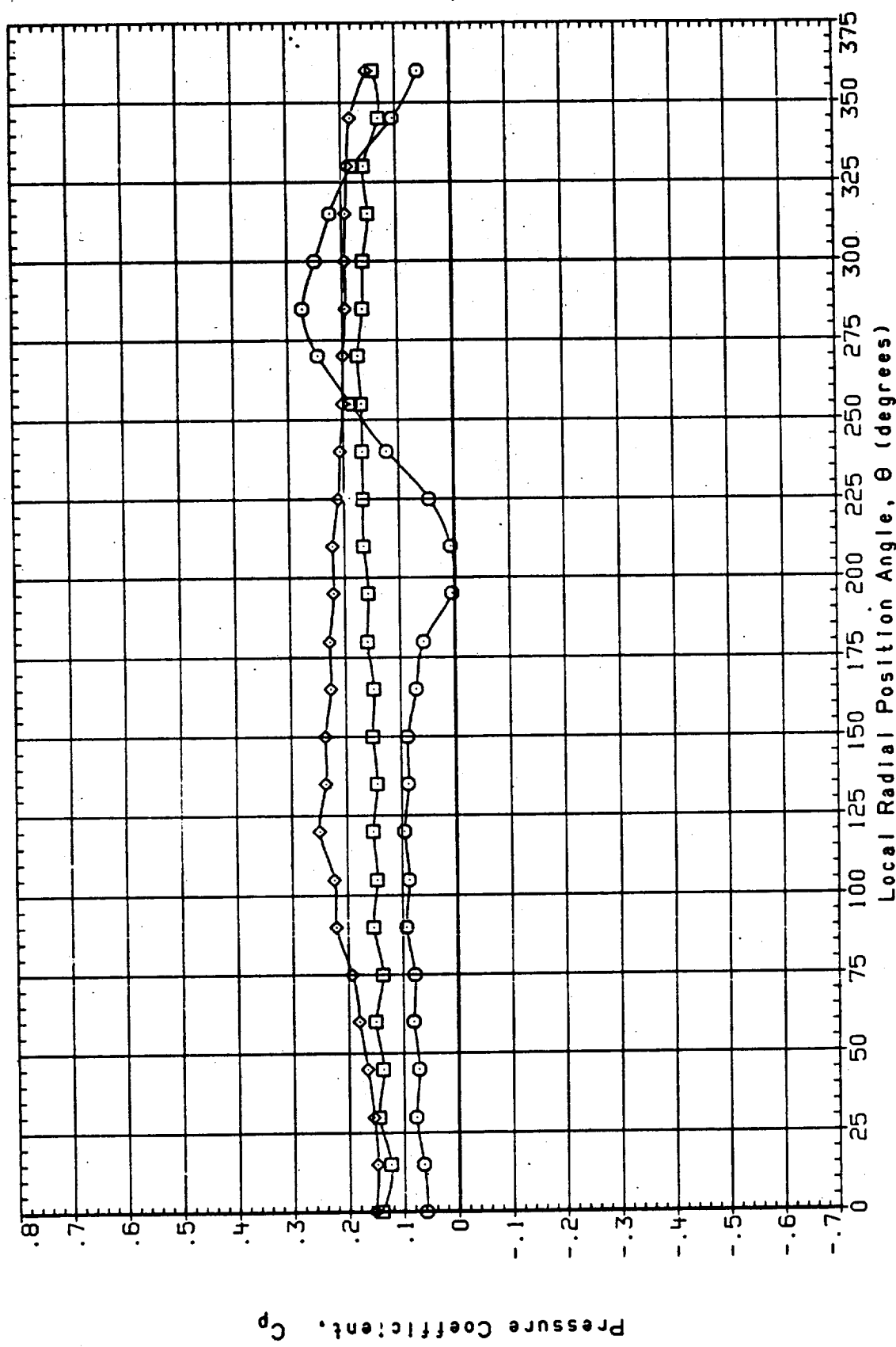


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
-4.000 1950.000 .000
4.000

PARAMETRIC VALUES
MACH 08-ELV 10.000
08-ELV 9.000
GAP .000

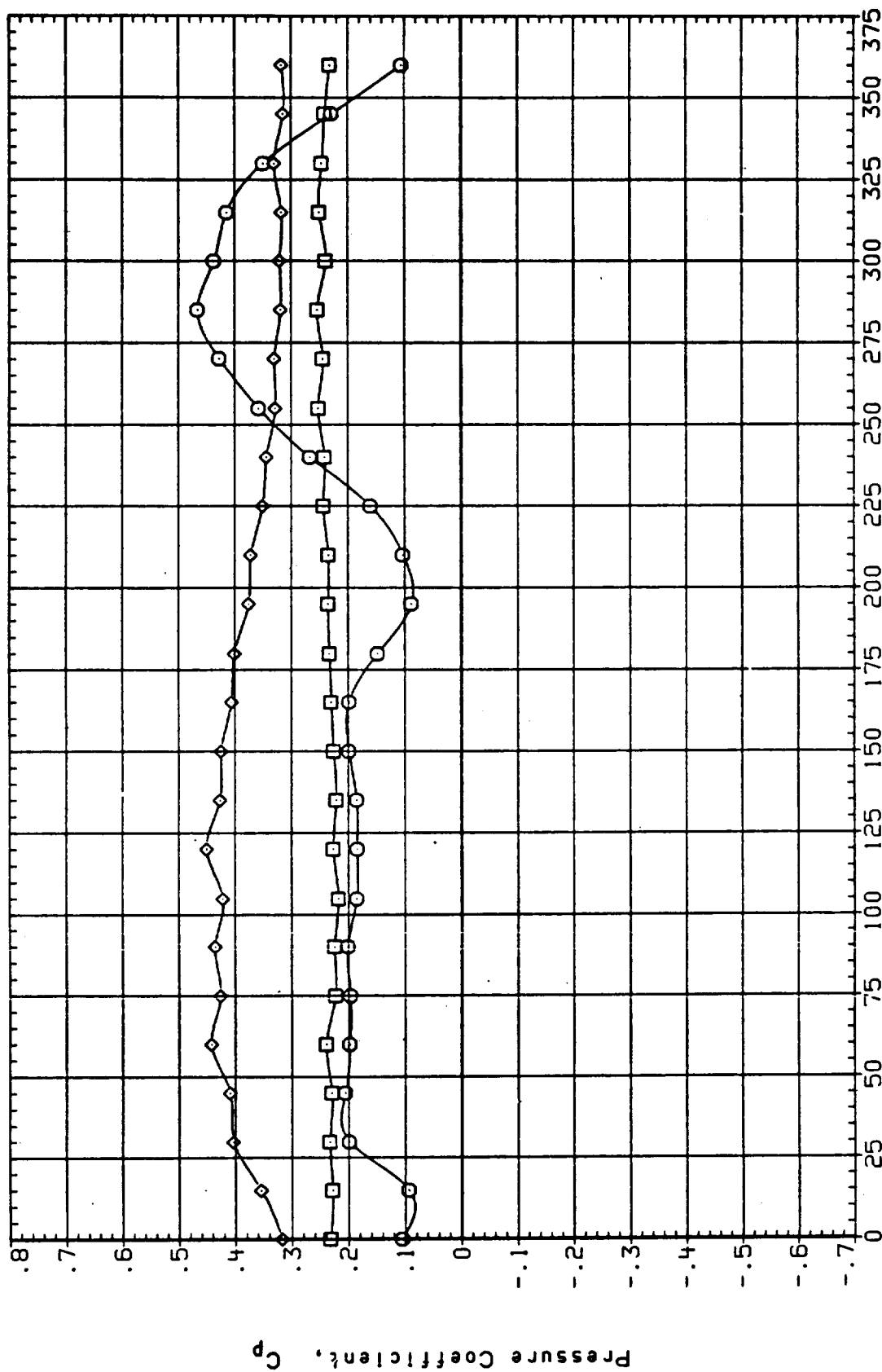


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL17) IA190A, LO2 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA .000
 -4.000 2000.000
 .000
 4.000

PARAMETRIC VALUES
 MACH 08-ELV 10.000
 .600 18-ELV .000
 9.000 GAP

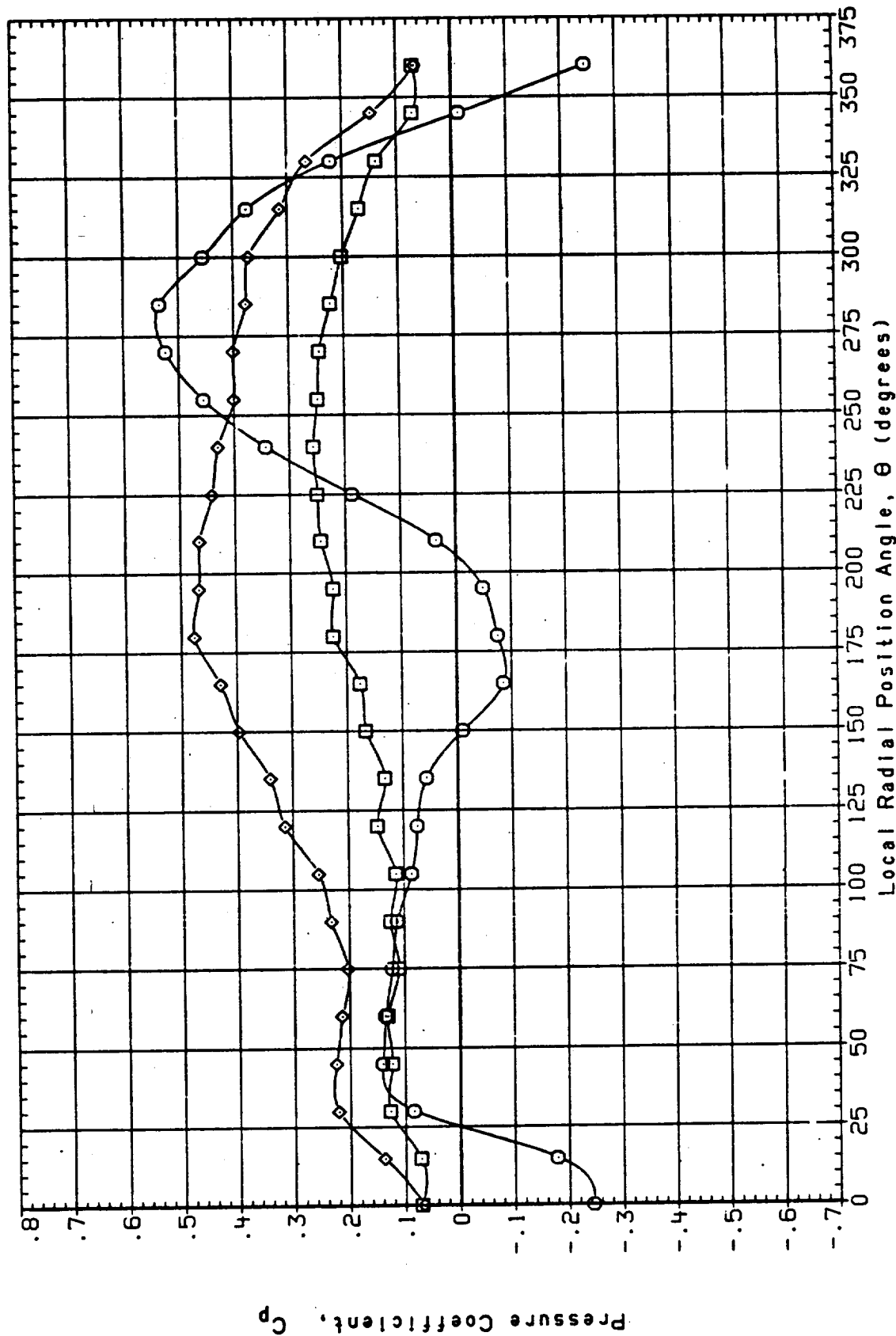


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	OB-ELV	IB-ELV	GAP
◇	-4.000	1050.000	.000	1.250	.000	10.000	.000
□	.000						
◇	4.000						

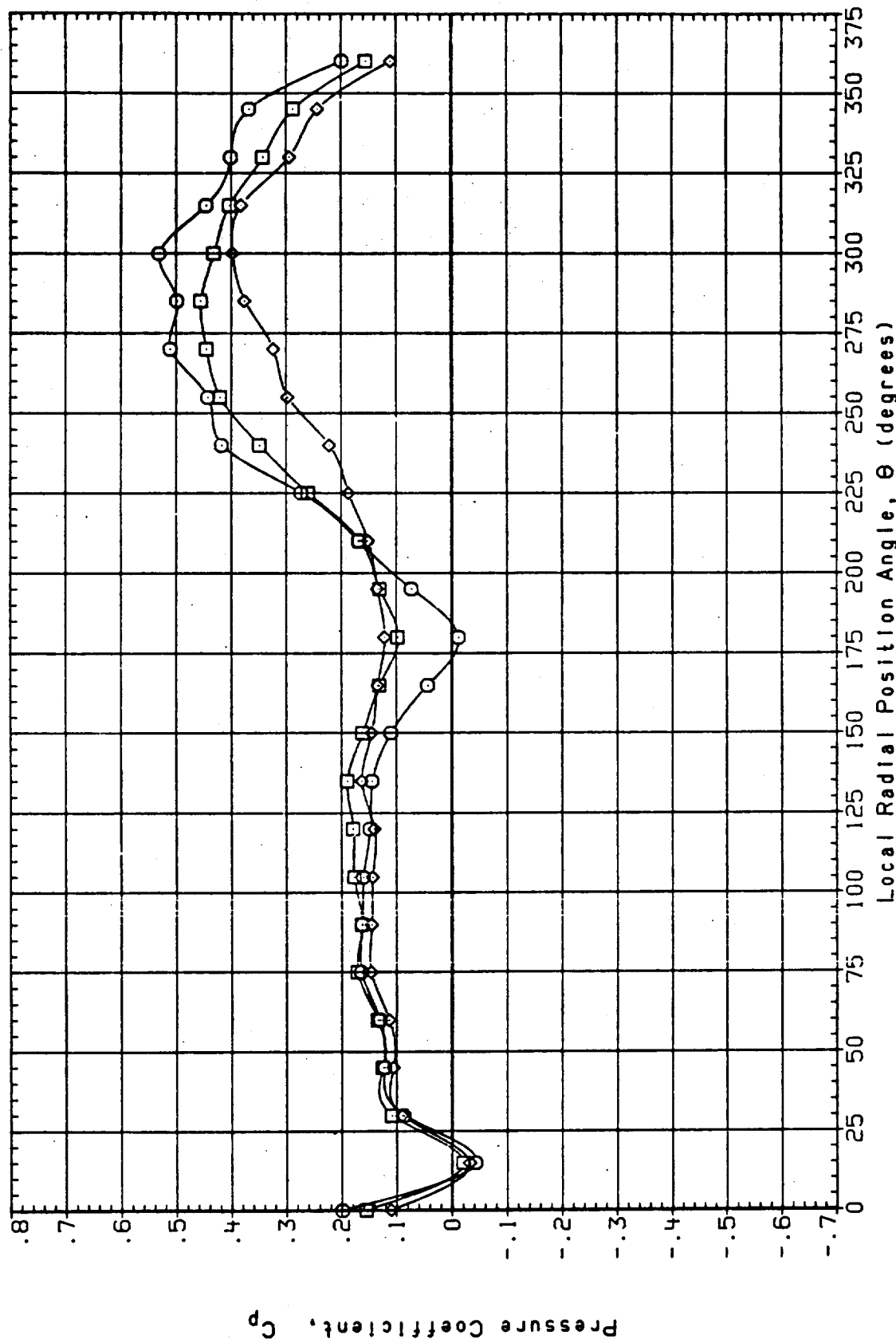


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 -4.000 1100.000 .000
 .000
 4.000

PARAMETRIC VALUES
 MACH 1.250 10.000
 OB-ELV .000 IB-ELV
 GAP

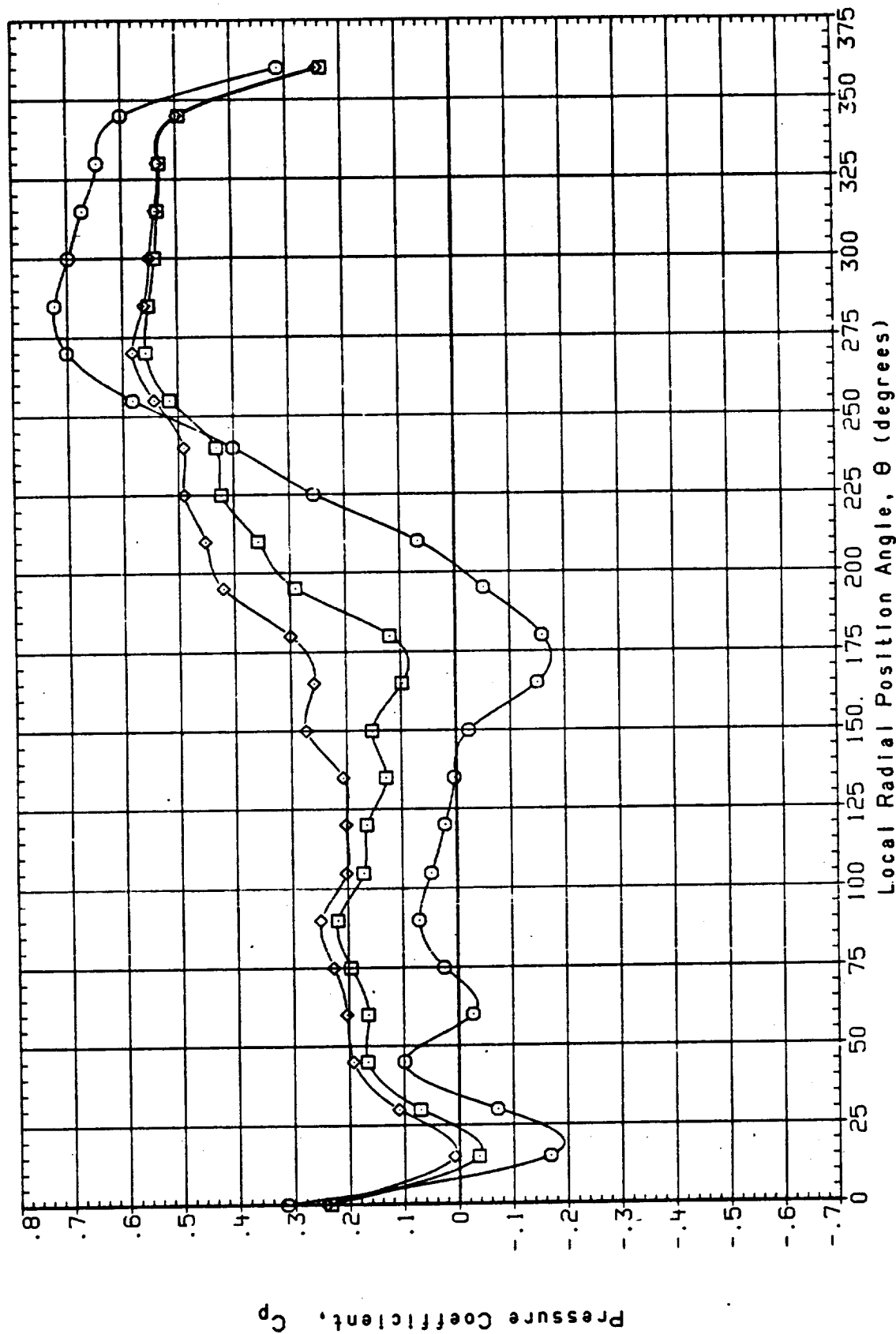


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	PARAMETRIC VALUES
□	-4.000	1150.000	.000	OB-ELV	1.250
◇	.000				.003
	4.000				10.000
					.000

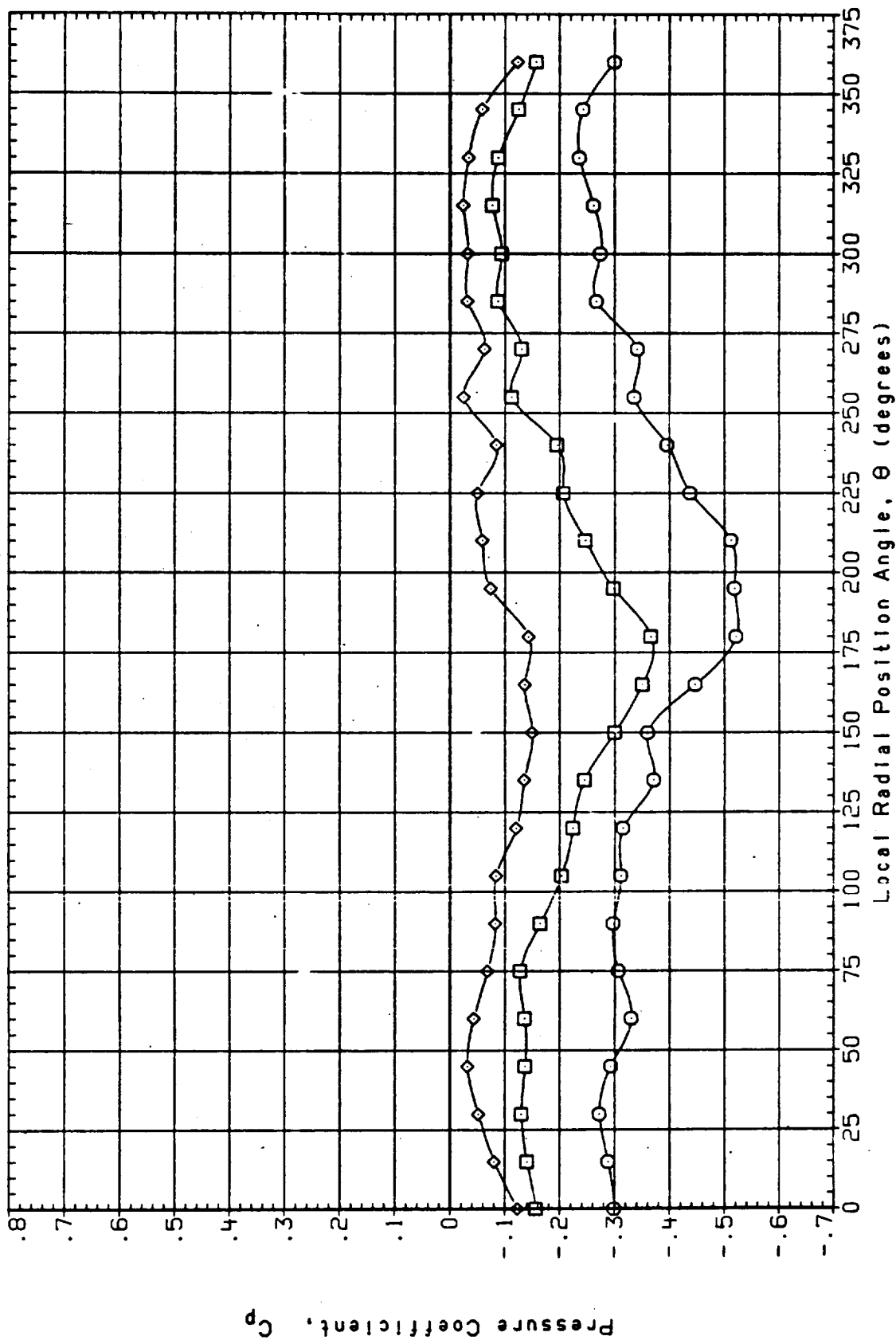


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 -4.000 1200.000 .000
 .000
 4.000

PARAMETRIC VALUES
 1.250 18-ELV 10.000
 .000 GAP .000

MACH
 (9-EL)

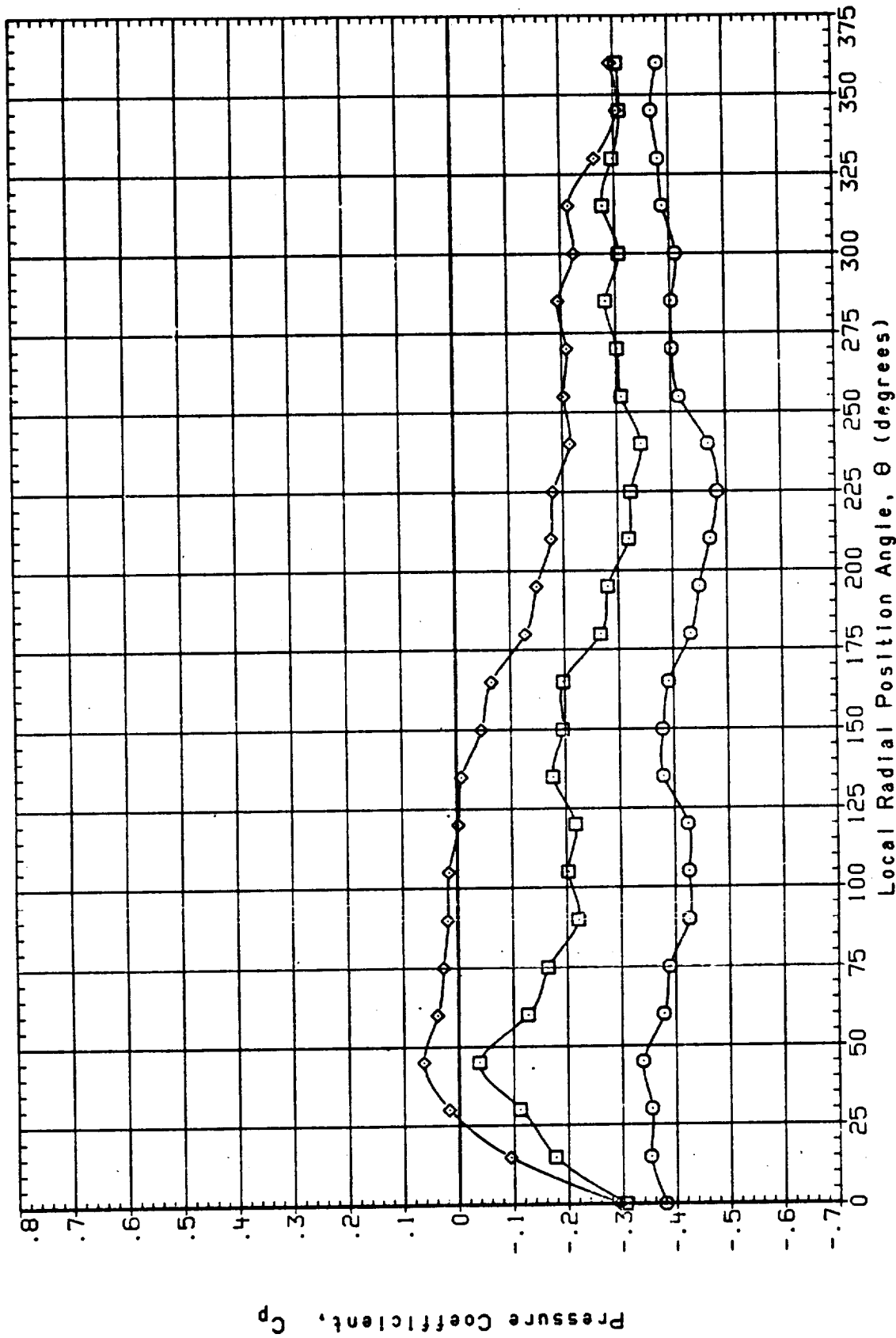


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XI ALPHA
-4.000 1250.000 .000
4.000

PARAMETRIC VALUES
MACH 10.000
OB-ELV .000
18-ELV .000
GAP

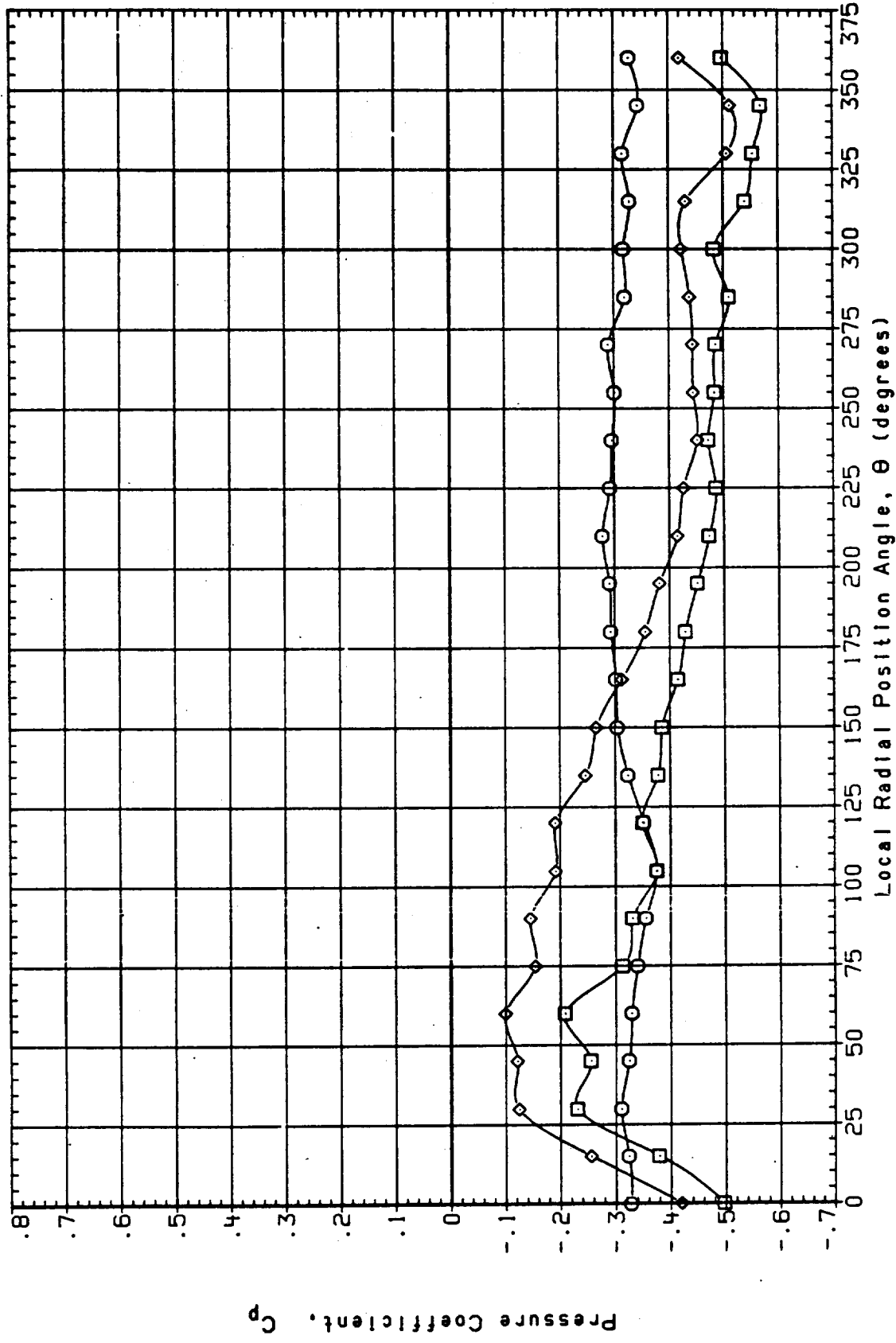


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 -4.000 1300.000 .000
 4.000

PARAMETRIC VALUES
 MACH 10.000
 08-ELV 18-ELV
 .000 .000

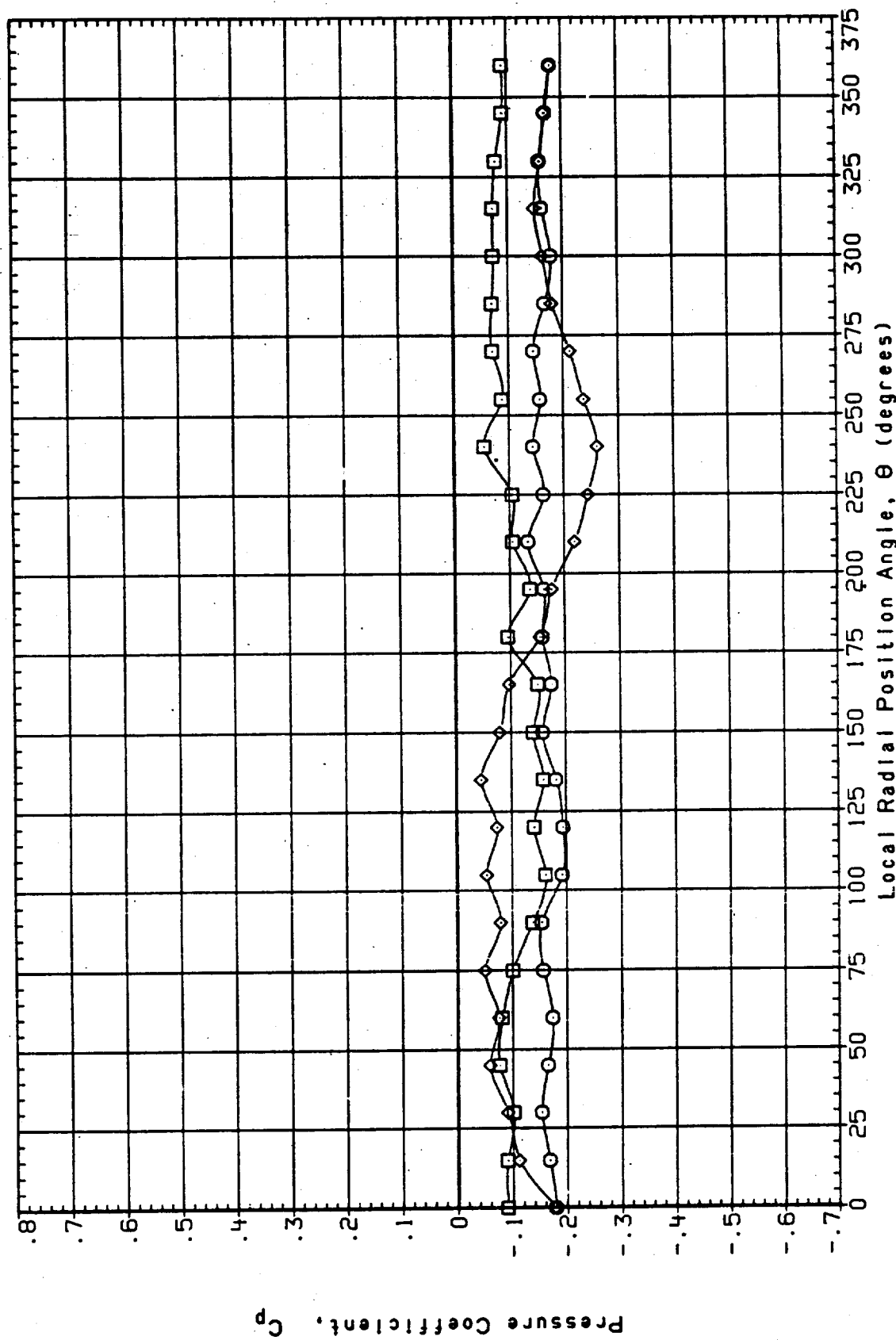


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, LO2 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 -4.000 1350.000 .000
 4.000

PARAMETRIC VALUES
 MACH 1.250 10.000
 OB-ELV .000 1B-ELV
 GAP

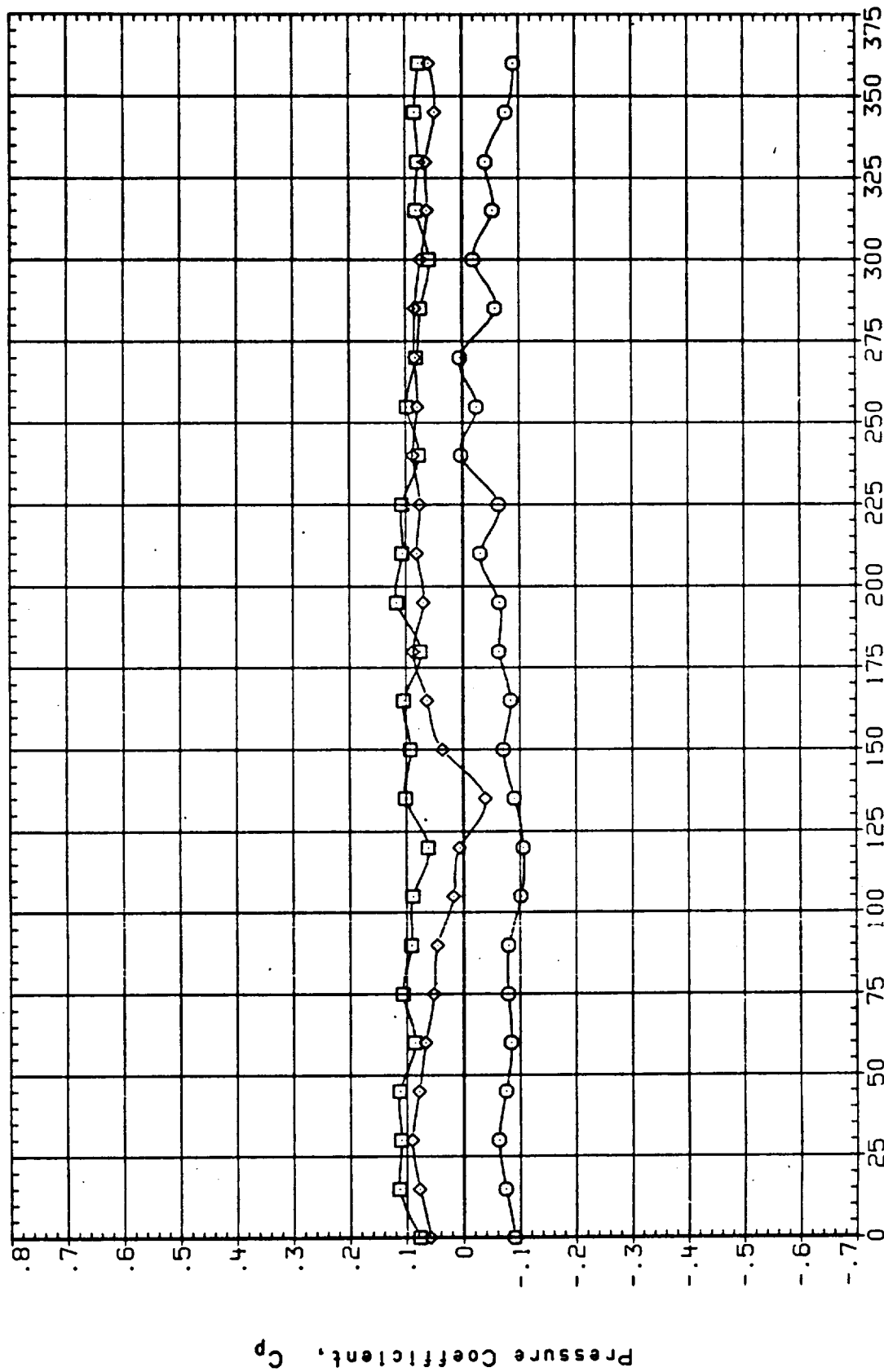


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 -4.000 1400.000 .000
 .000
 4.000

PARAMETRIC VALUES
 MACH 1.250 10.000
 OB-ELV .000 IB-ELV .000
 GAP

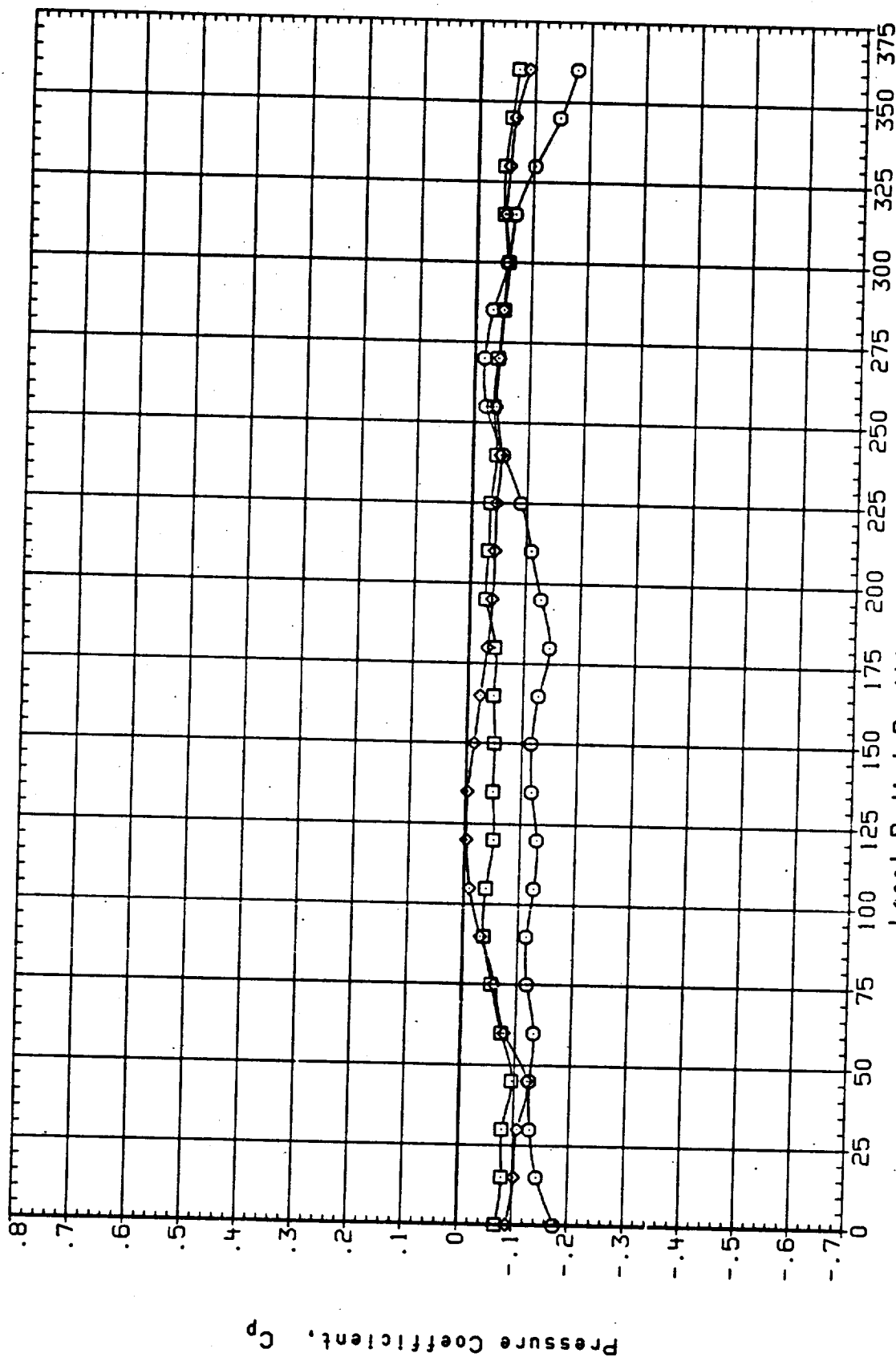


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL
 BETA
 -4.000
 .000
 4.000

XT
 1450.000
 ALPHA
 .000

MACH
 08-ELV

PARAMETRIC VALUES
 1.250
 .000
 10.000
 10.000
 10.000

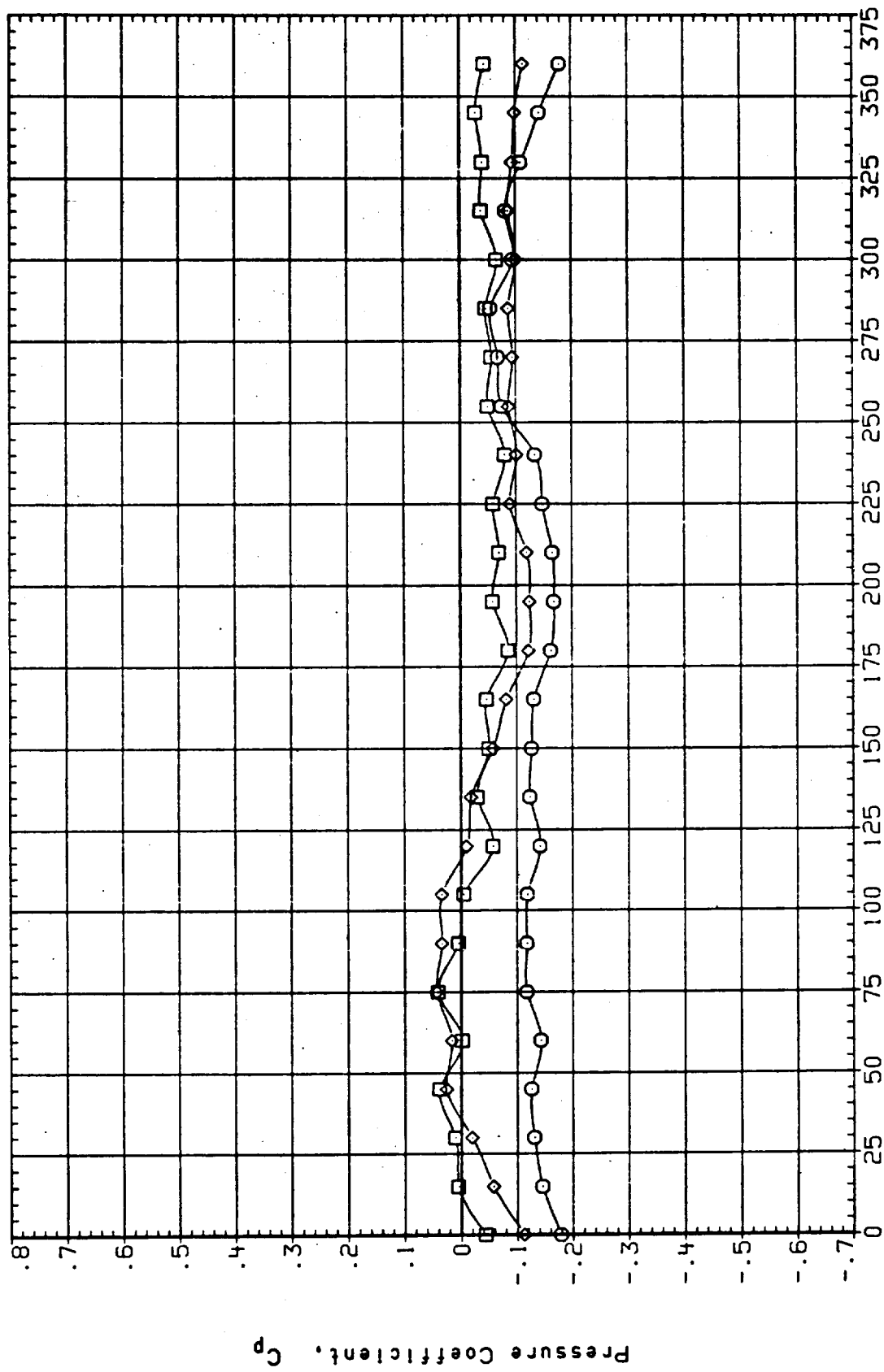


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, LO2 FEED LINE, RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES	1B-ELV	10.000
◇	-4.000	1500.000	.000					
○	.000							
□	4.000							

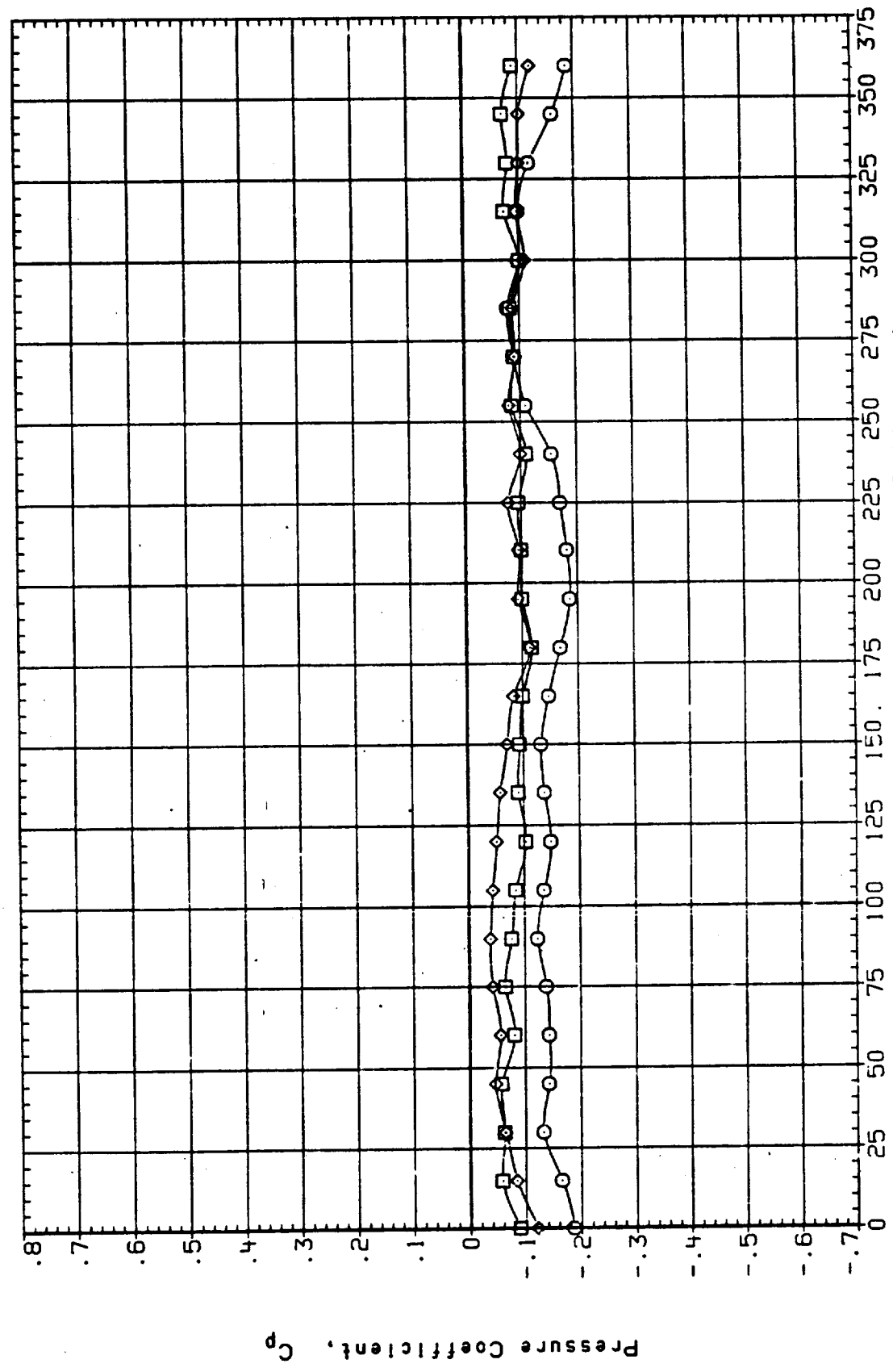


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL	BETA	XT	ALPHA
◇	-4.000	1600.000	.000
□	.000		
○	4.000		

PARAMETRIC VALUES

MACH	1B-ELV	10.000
OB-ELV	GAP	.000

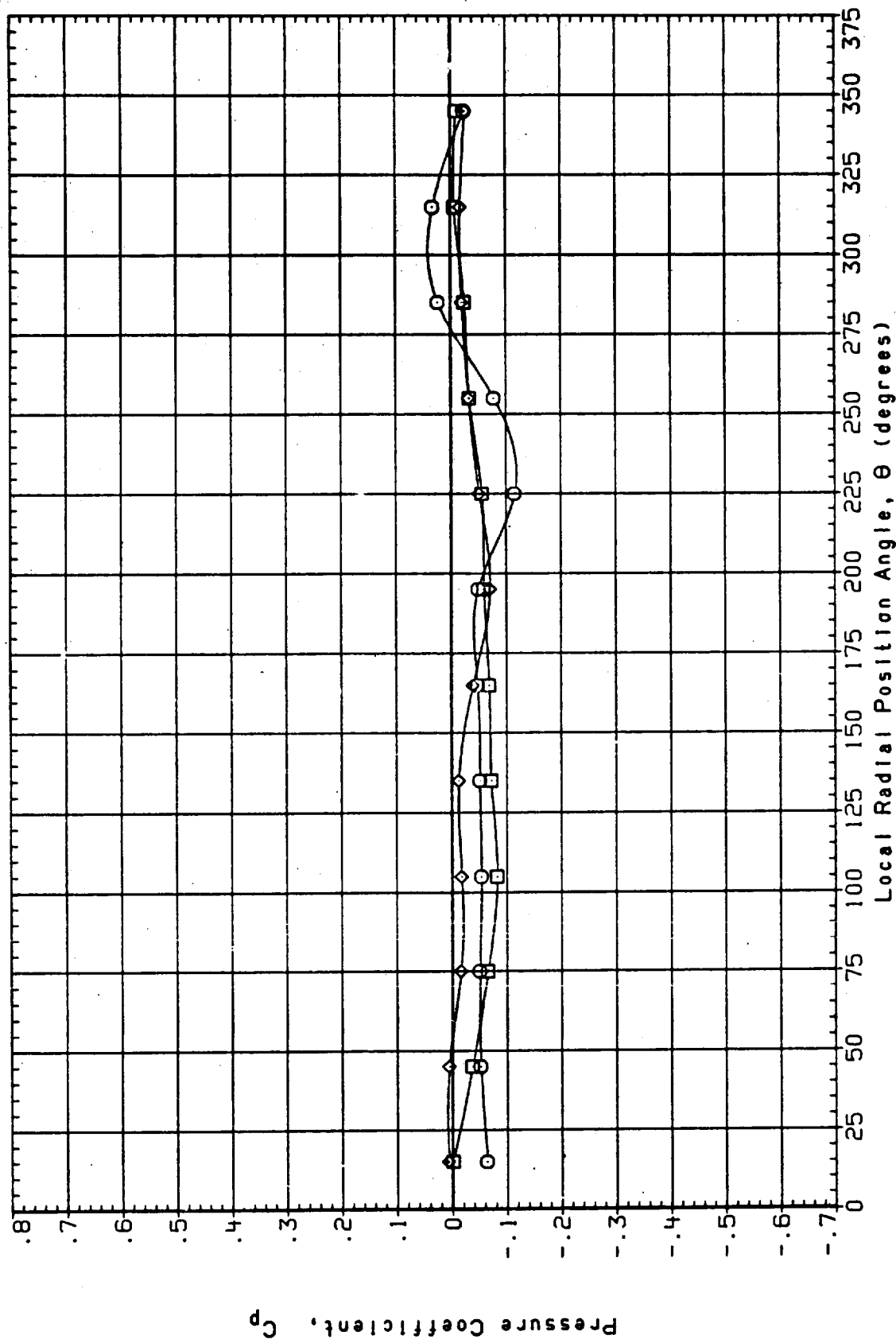


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 □ -4.000 1700.000 .000
 ○ .000
 ◇ 4.000

PARAMETRIC VALUES
 MACH 1.250 18-ELV 10.000
 OB-ELV .000 GAP .000

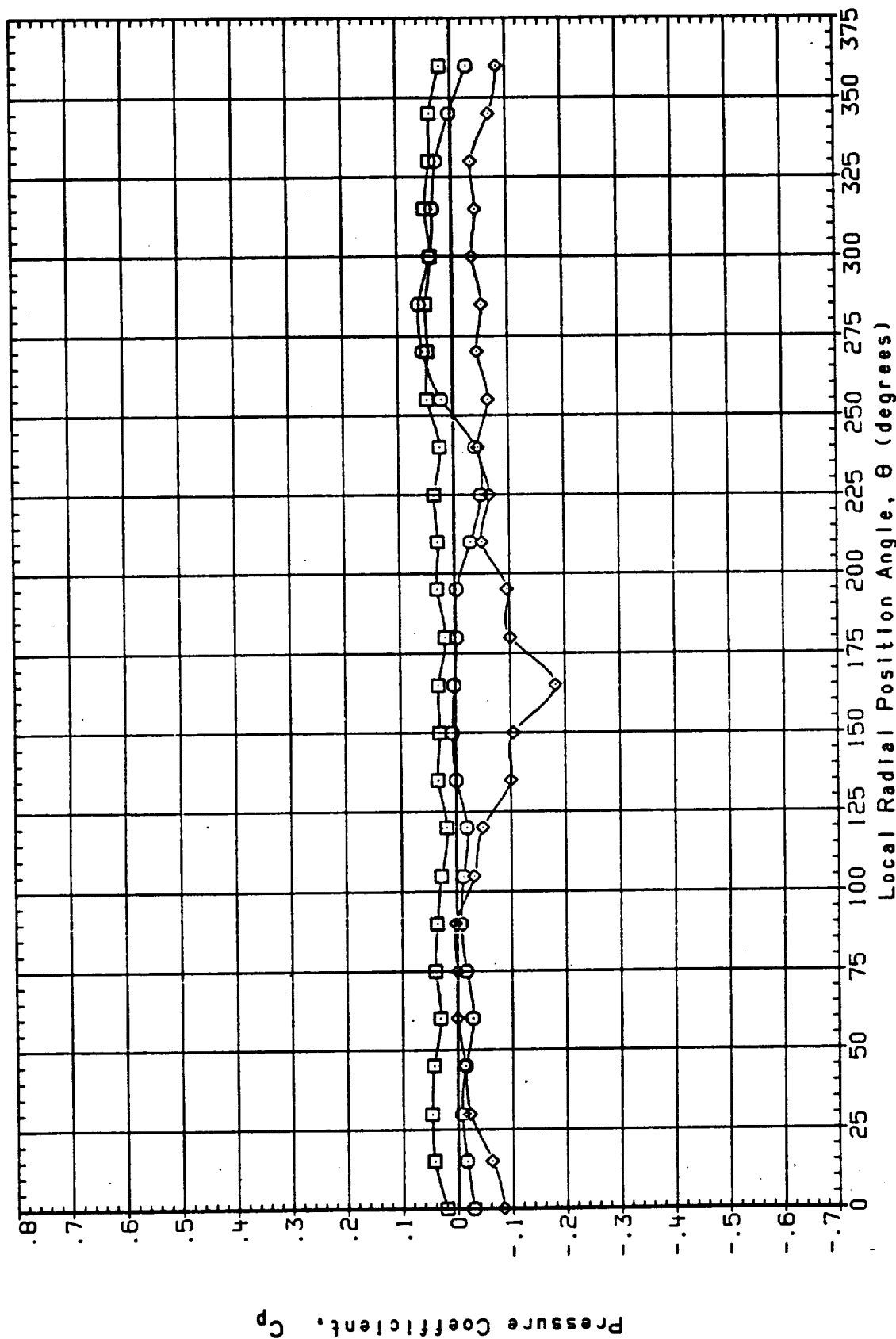


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) IA190A, LO2 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
 □ -4.000 1800.000 .000
 ○ .000
 ◇ 4.000

PARAMETRIC VALUES
 MACH 1.250 18-ELV 10.000
 OB-ELV .000 GAP

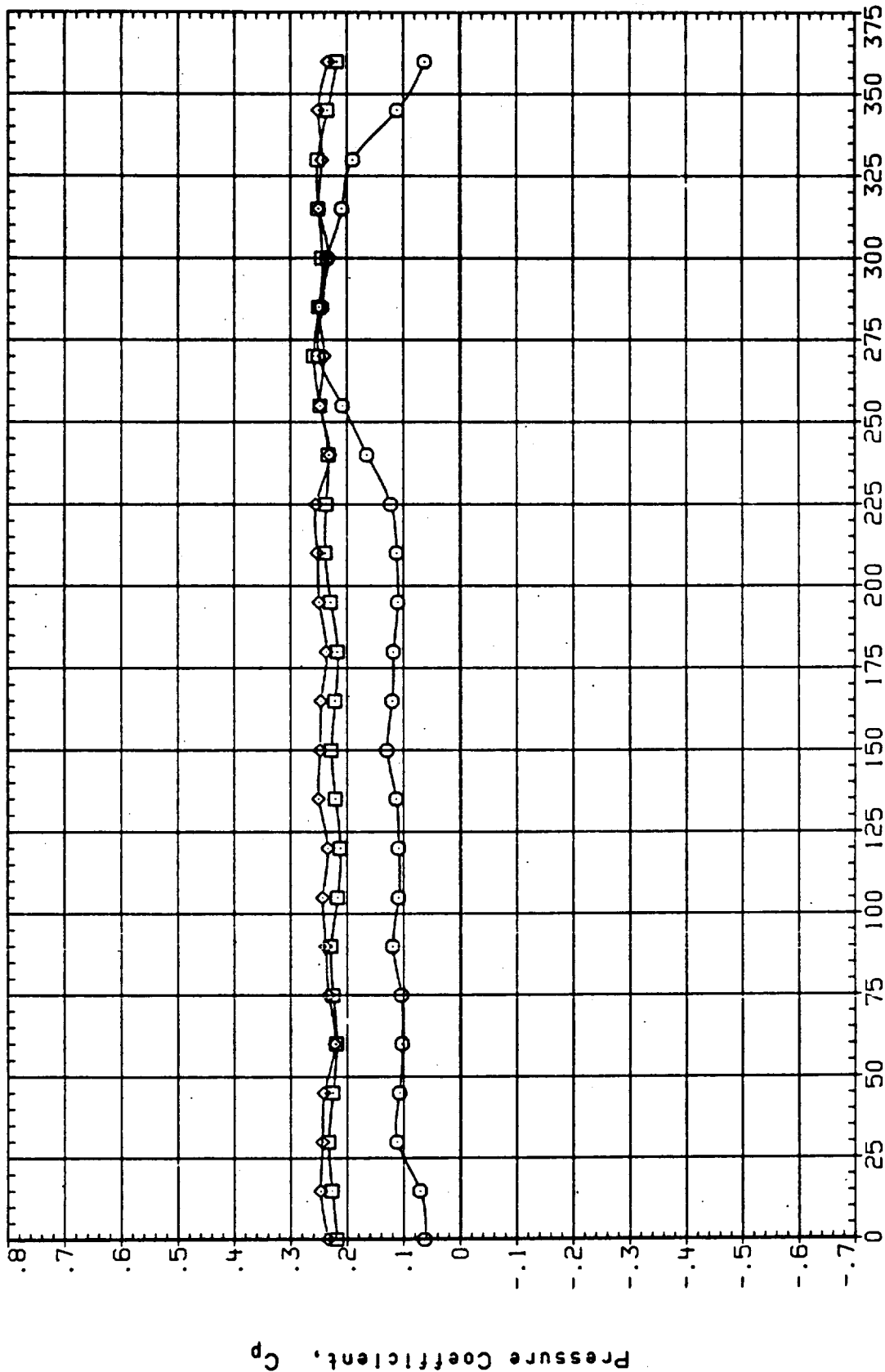


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

PARAMETRIC VALUES
MACH 1.250 18-ELV 10.000
OB-ELV .000

SYMBOL BETA XT ALPHA
-4.000 1900.000 .000
4.000

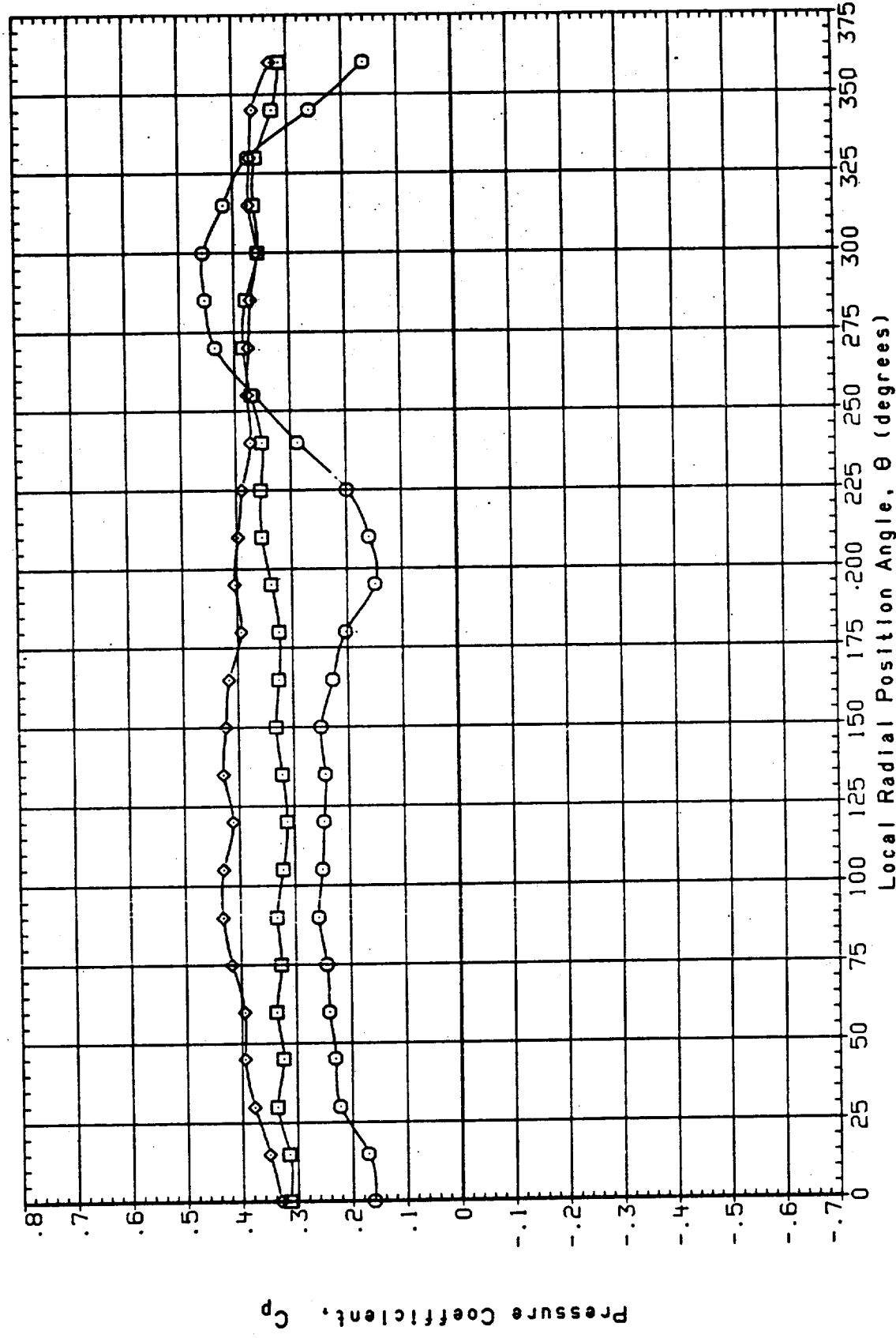


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, L02 FEED LINE, RAMPS ON

SYMBOL BETA XT ALPHA
-4.000 1950.000 .000
4.000

PARAMETRIC VALUES
MACH 10.000
OB-ELV 1.250
18-ELV .000
GAP

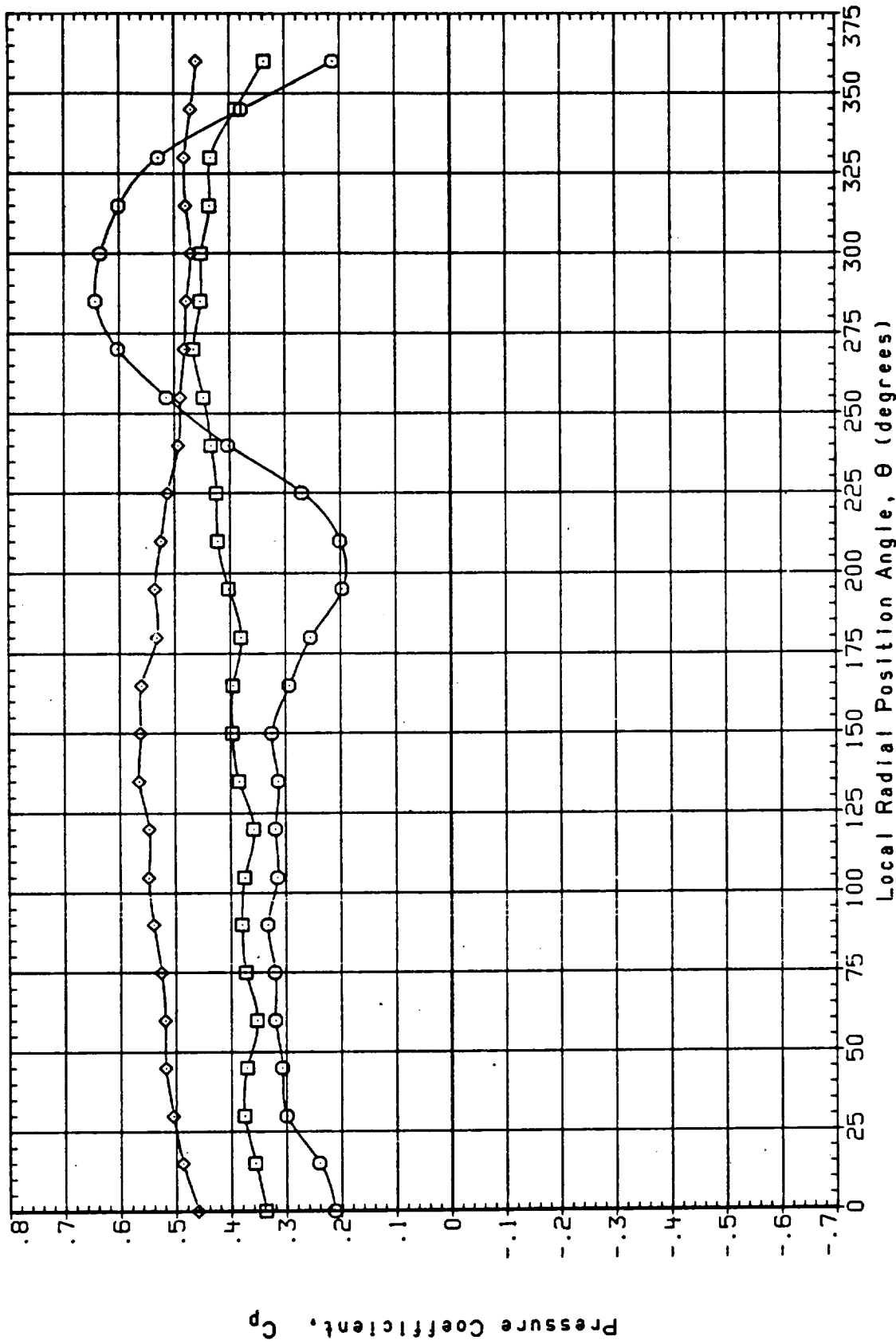


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13JUL20) 1A190A, LO2 FEED LINE, RAMPS ON

SYMBOL
 BETA
 -4.000
 .000
 4.000

XT
 2000.000

ALPHA
 .000

PARAMETRIC VALUES
 MACH
 08-ELV
 1.250
 18-ELV
 .000
 10.000
 .000

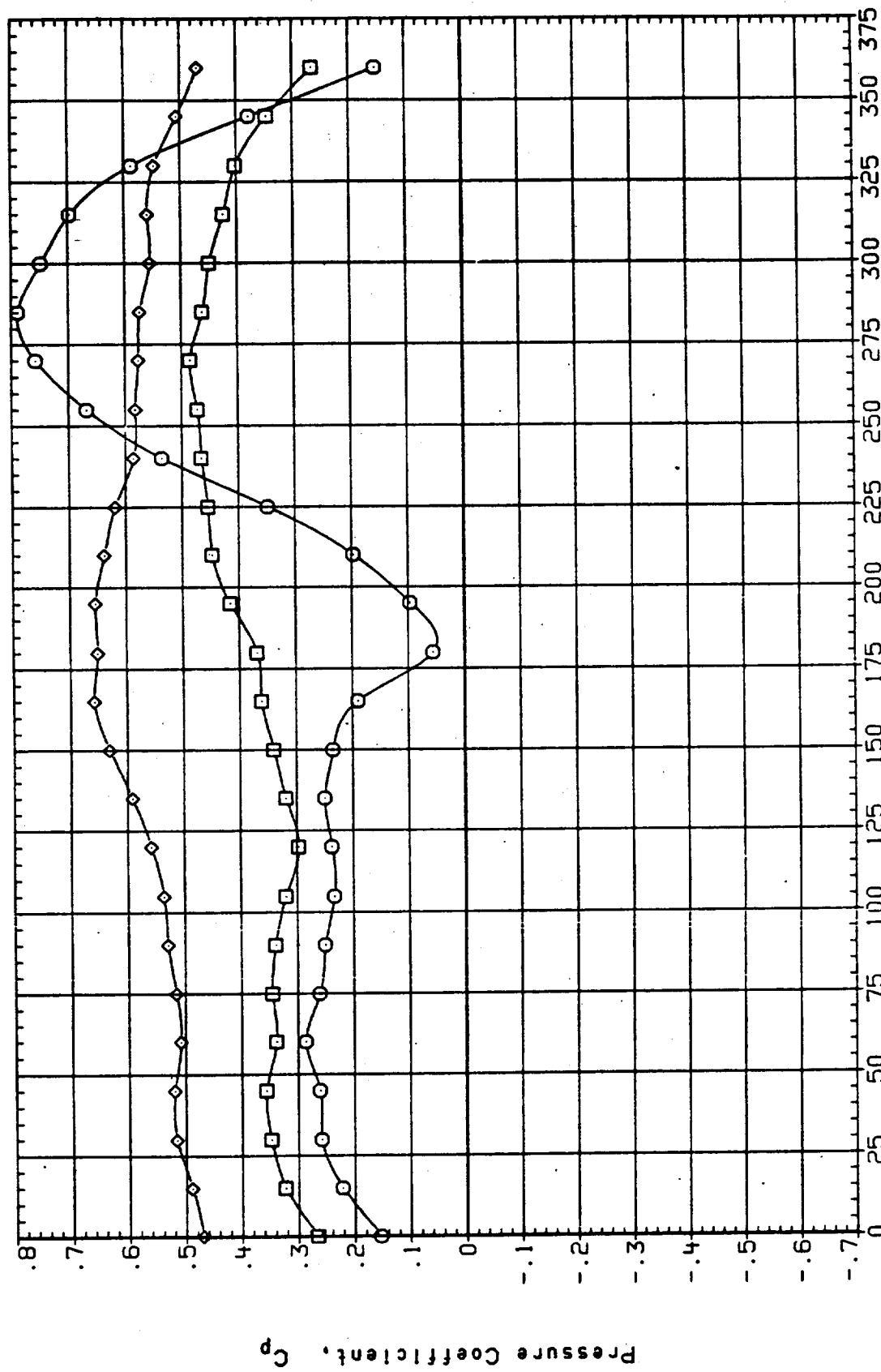


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13VL05) 1A190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL	BETA	XT	ALPHA	MACH	PARAMETRIC VALUES
□	-4.000	1050.000	.000	18-ELV	2.000
◇	4.000			08-ELV	8.000
					600.000
					-5.000

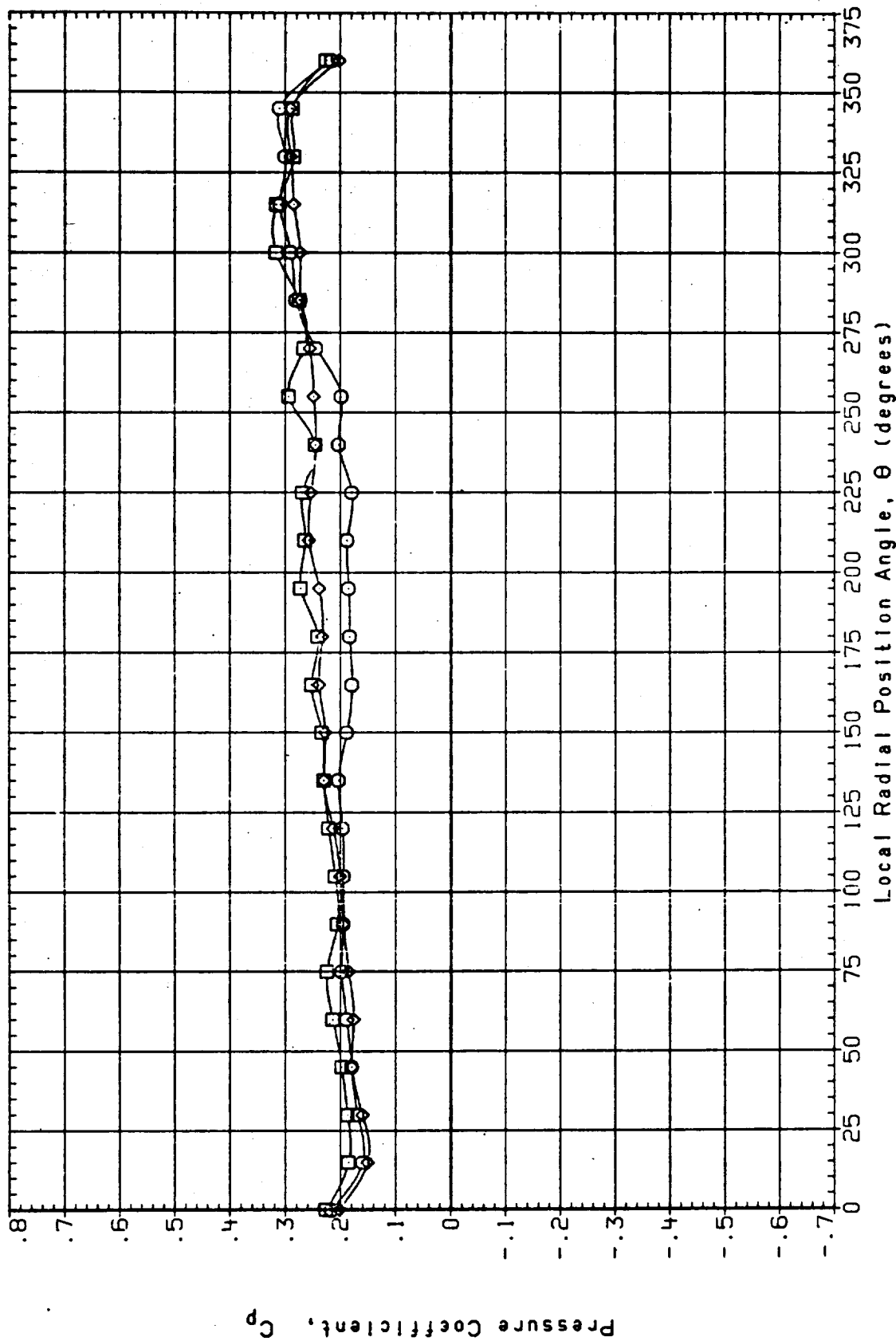


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) 1A190B, LO2 FEEDLINE, RAMPS(1) ON

SYMBOL BETA XT ALPHA
 □ -4.000 1100.000 .000
 ○ .000
 ◇ 4.000

PARAMETRIC VALUES
 MACH 2.000 8.000 600.000
 IB ELV 08-ELV -5.000

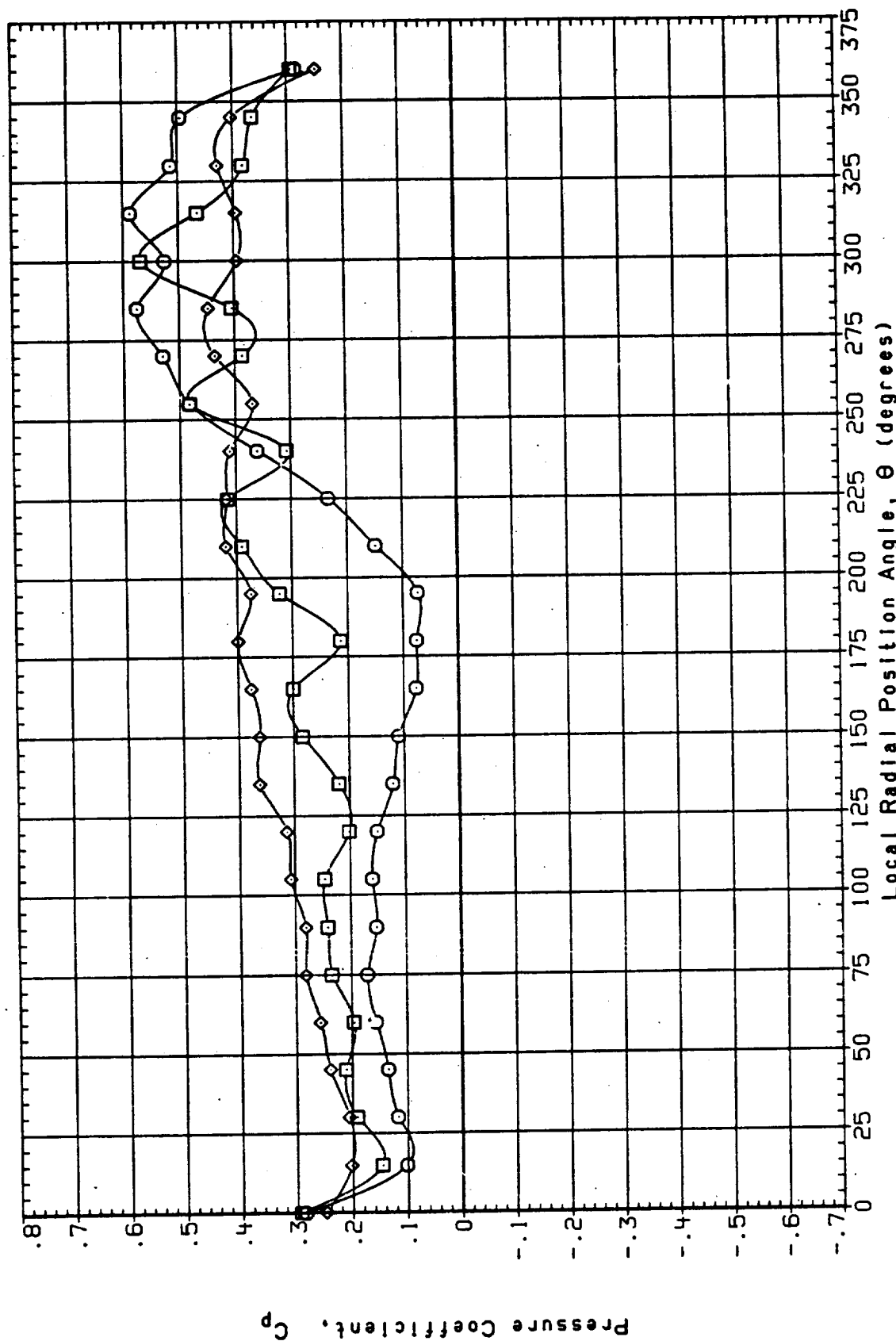


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13VL05) 1A190B, L02 FEEDLINE, RAMPS(1) UN

SYMBOL	BETA	XT	ALPHA
○	-4.000	1150.000	.000
□	.000		
◇	4.000		

PARAMETRIC VALUES

MACH	Q(PSF)	600.000
1B-ELV	0B-ELV	-5.000

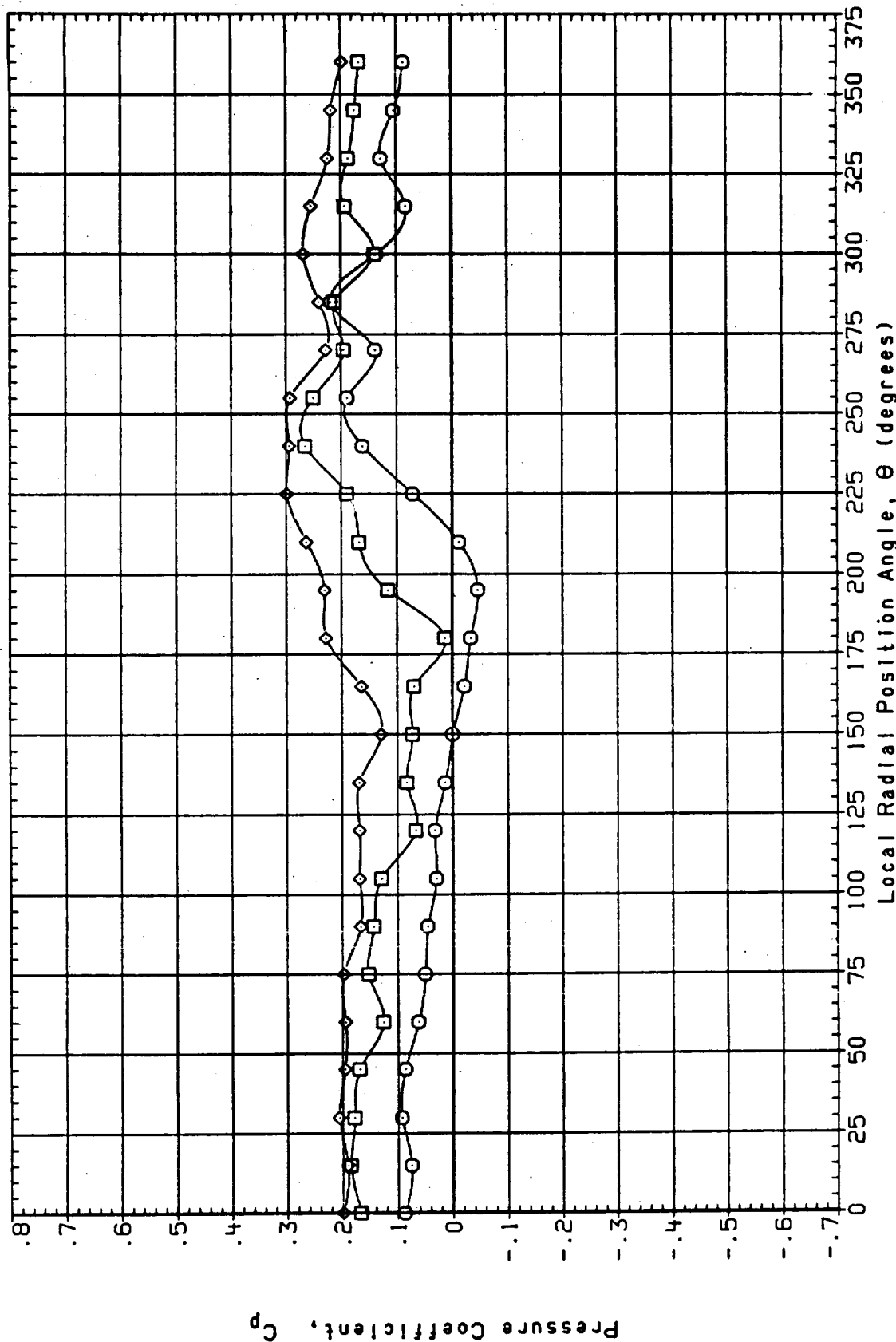


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) 1A190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL
◇

BETA
-4.000
4.000

XT
1200.000

ALPHA
.000

MACH
1B-ELV

PARAMETRIC VALUES

2.000 600.000
8.000 Q(PSF) 600.000
08-ELV -5.000

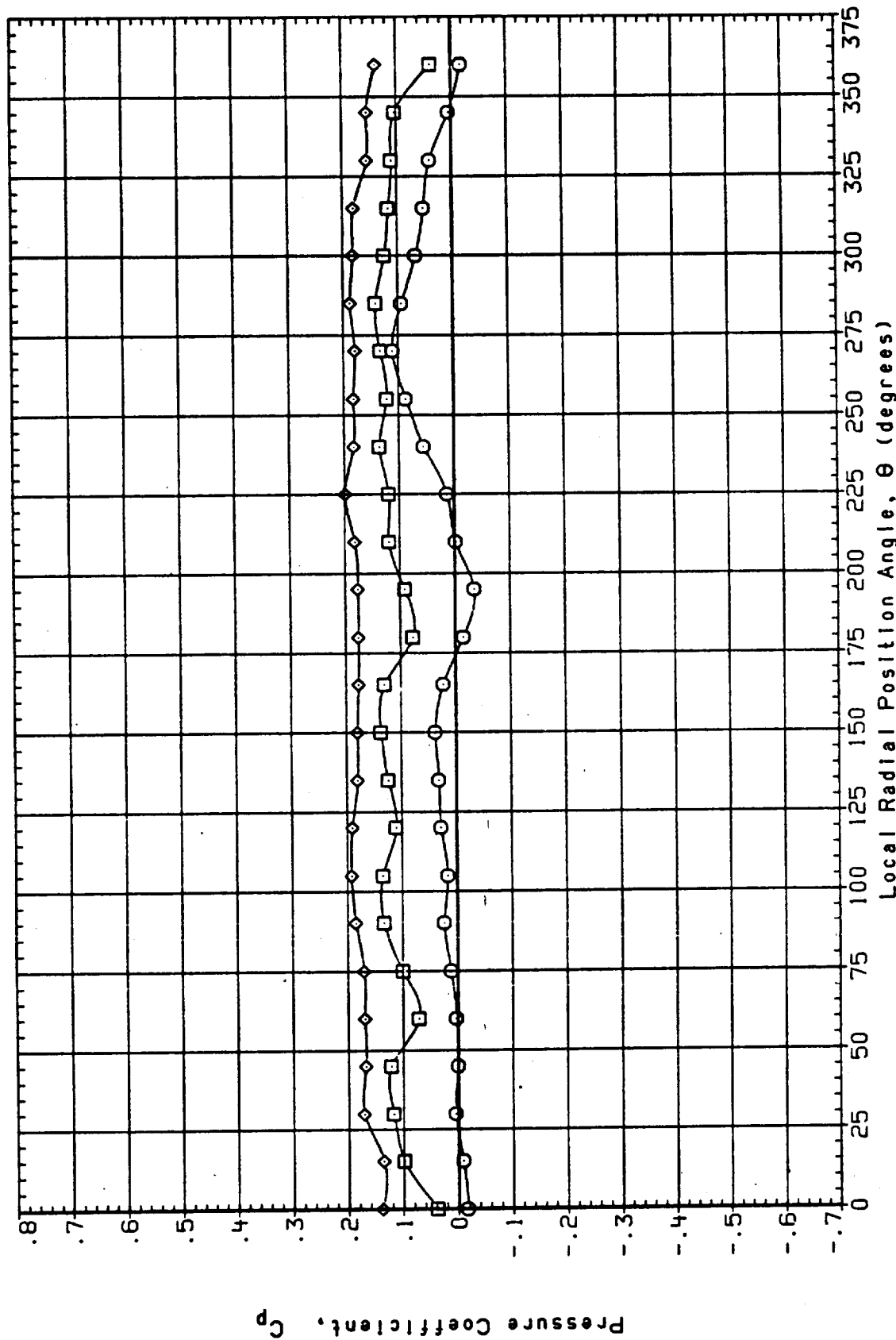


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) IA190B, LO2 FEEDLINE, RAMPS(1) ON

SYMBOL BETA XT ALPHA
 □ -4.000 1250.000 .000
 ○ .000
 ◇ 4.000

PARAMETRIC VALUES
 MACH 2.000 Q(PSF) 600.000
 1B-ELV 8.000 08-ELV -5.000

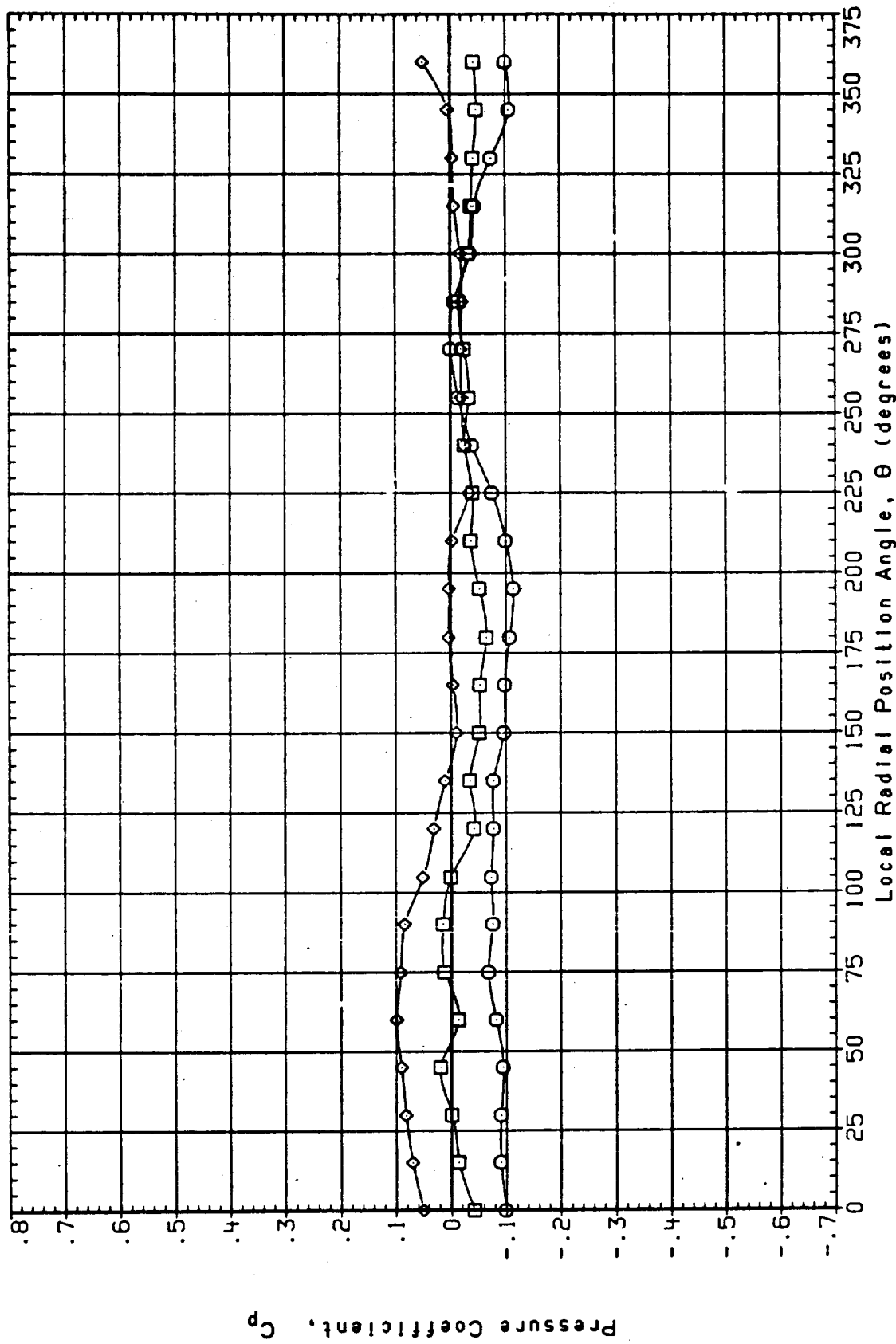


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13VL05) 1A190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL BETA XT ALPHA
 -4.000 1300.000 .000
 4.000

PARAMETRIC VALUES
 MACH 18-ELV
 2.000 8.000 600.000
 09-ELV -5.000

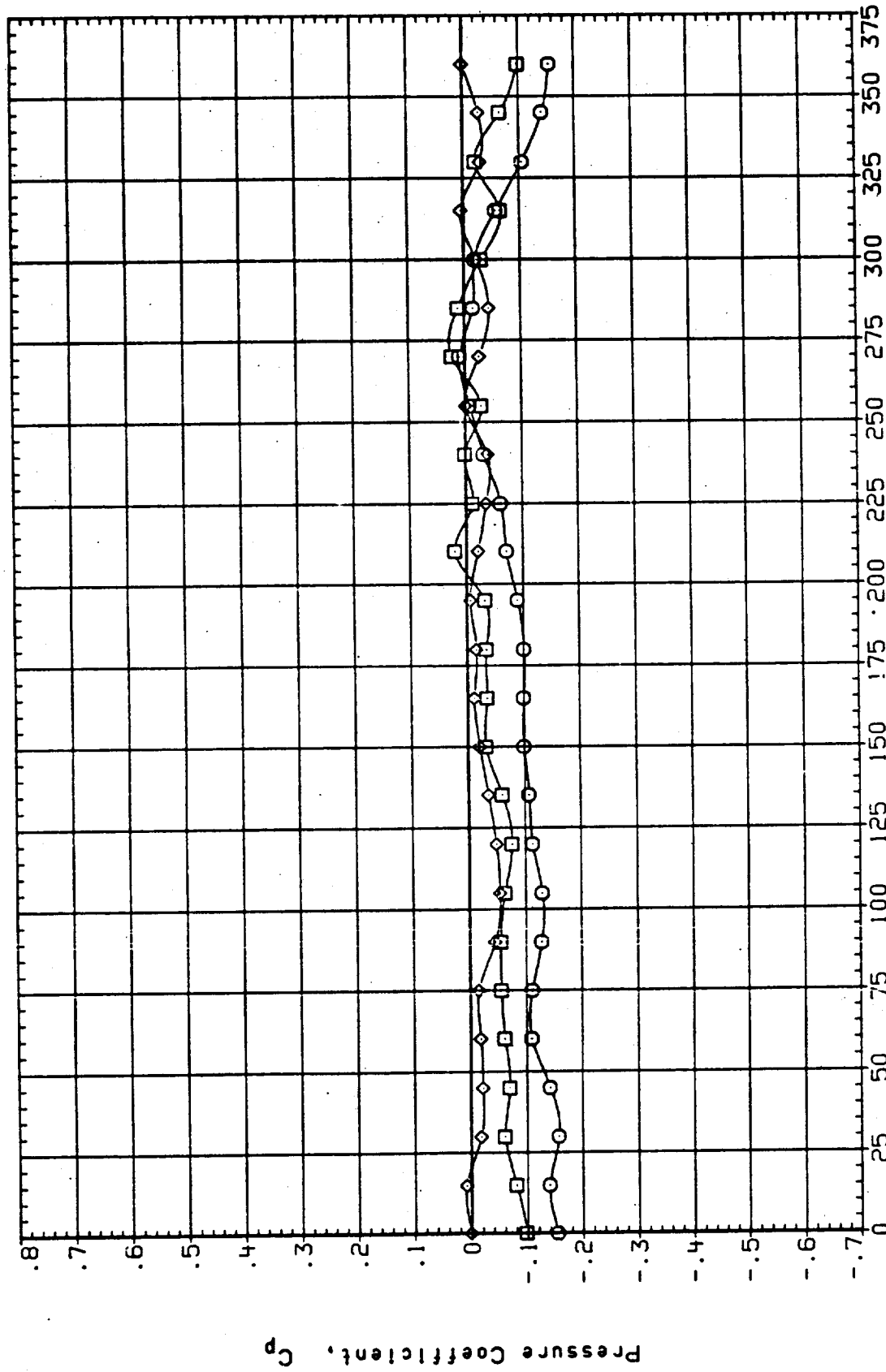


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE
 Local Radial Position Angle, θ (degrees)

(I3VL05) 1A190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL	BETA	XT	ALPHA	MACH	PARAMETRIC VALUES	
◇	-4.000	1350.000	.000	18-ELV	2.000	Q(PSF)
□	.000				8.000	OB-ELV
○	4.000				600.000	
					-5.000	

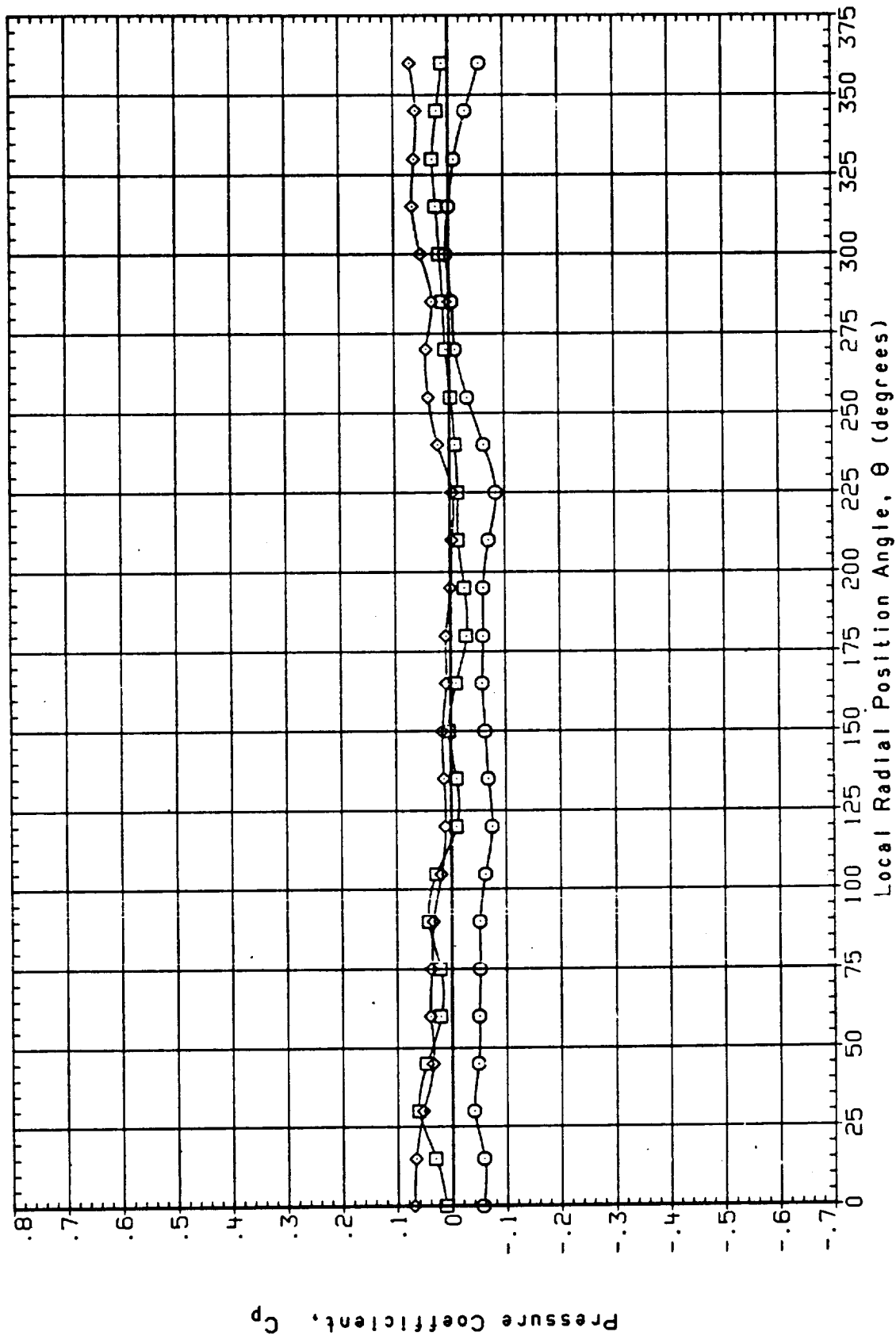


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) 1A190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL BETA XT ALPHA
 □ -4.000 1400.000 .000
 ○ .000
 ◇ 4.000

PARAMETRIC VALUES
 MACH 18-ELV 2.000 8.000 600.000
 Q (PSF) 08-ELV -5.000

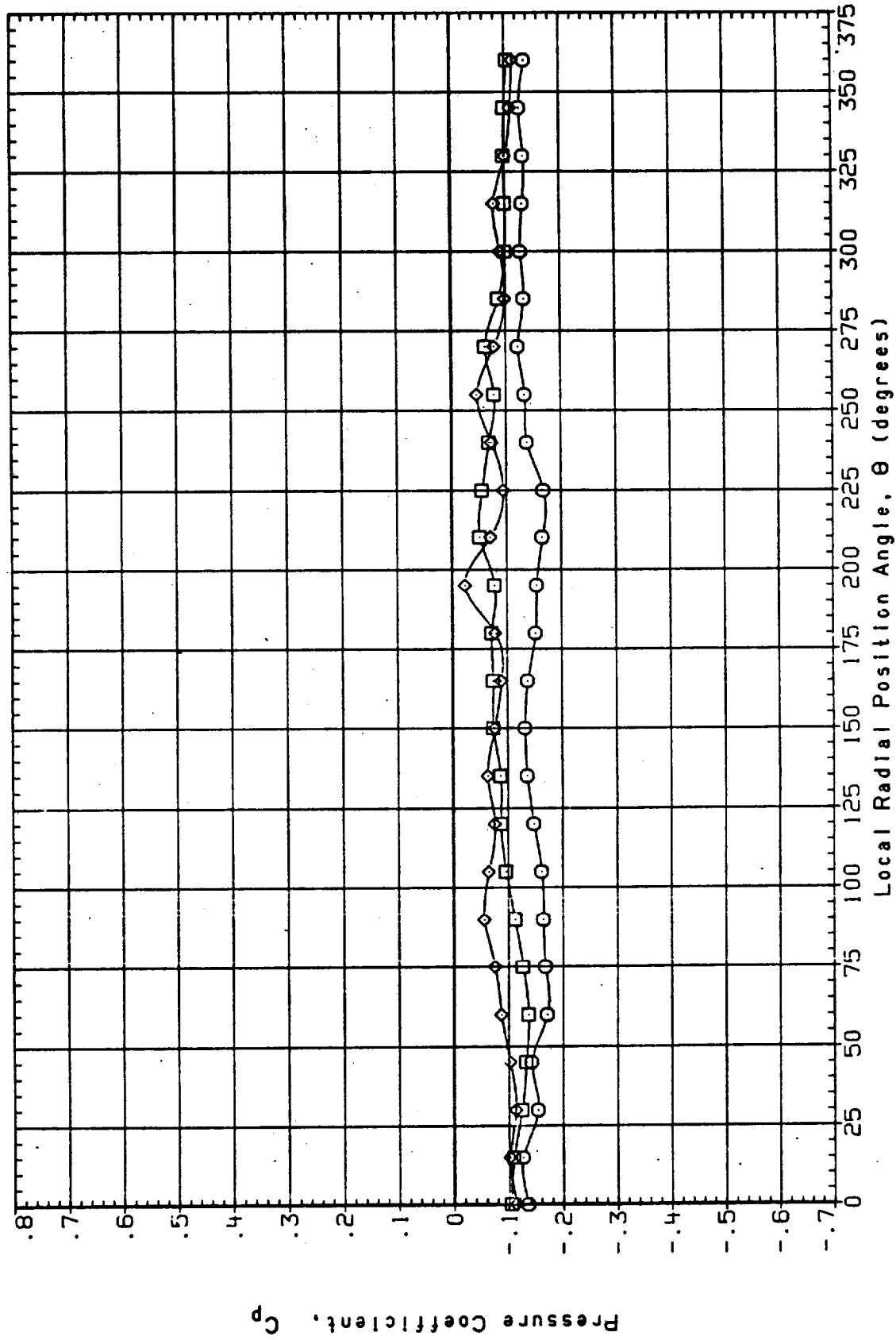


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) IA190B, L02 FEEDLINE, RAMPS(1) UN

SYMBOL	BETA	XT	ALPHA
□	-4.000	1450.000	.000
◇	.000		

PARAMETRIC VALUES

MACH	Q(PSF)	OB-ELV
18-ELV	2.000	600.000
	8.000	-5.000

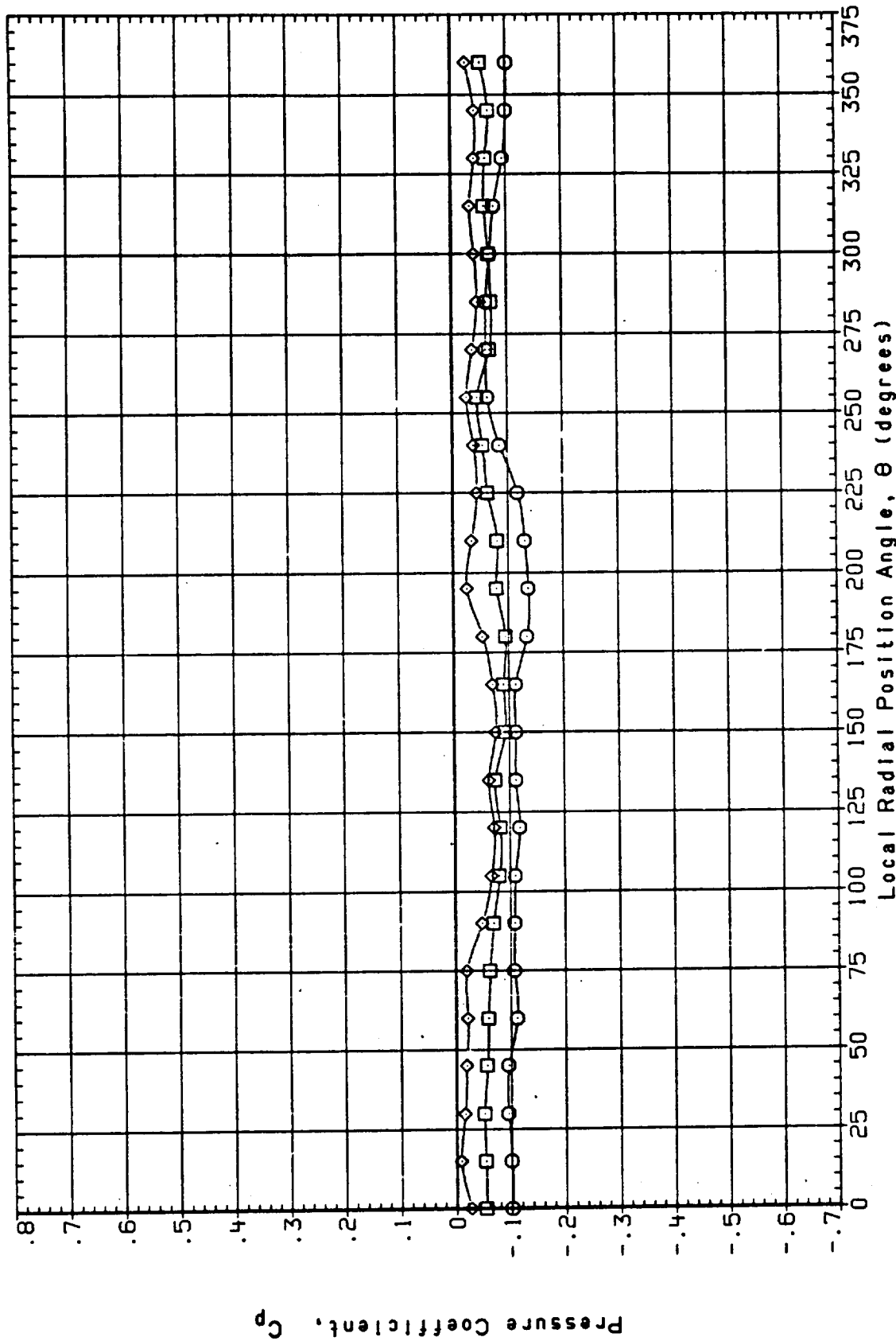


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) 1A1908, L02 FEEDLINE, RAMPS(1) ON

SYMBOL
◇
□
○

BETA
-4.000
.000
4.000

XT
1500.000
.000

ALPHA
.000

MACH
18-ELV

PARAMETRIC VALUES
2.000 8.000 600.000
Q(PSF) 08-ELV -5.000

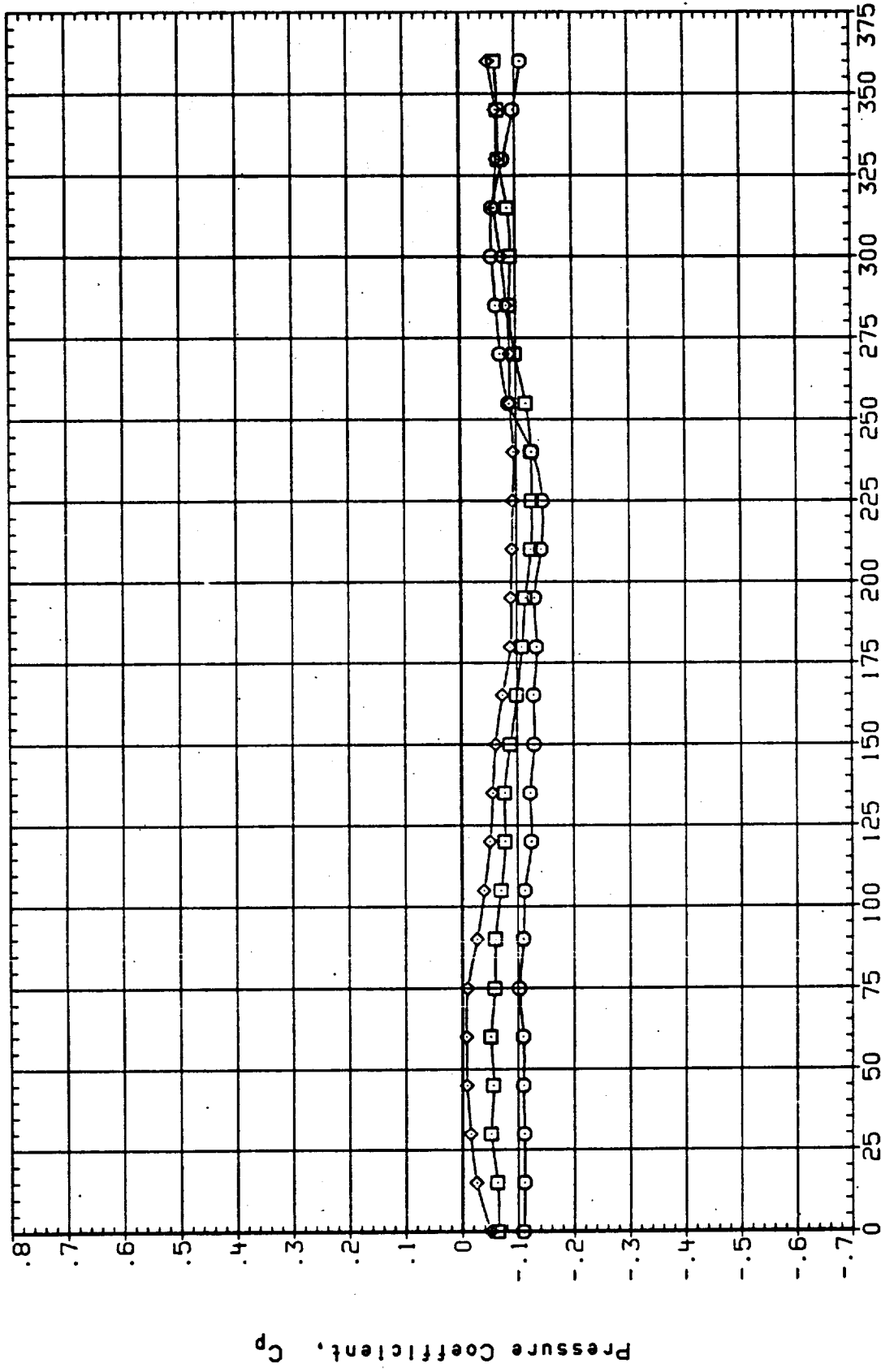


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) 1A190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL	BETA	XT	ALPHA
□	-4.000	1600.000	.000
◇	.000		
	4.000		

PARAMETRIC VALUES

2.000	0(PSF)	600.000
8.000	OB-ELV	-5.000

MACH
1B-ELV

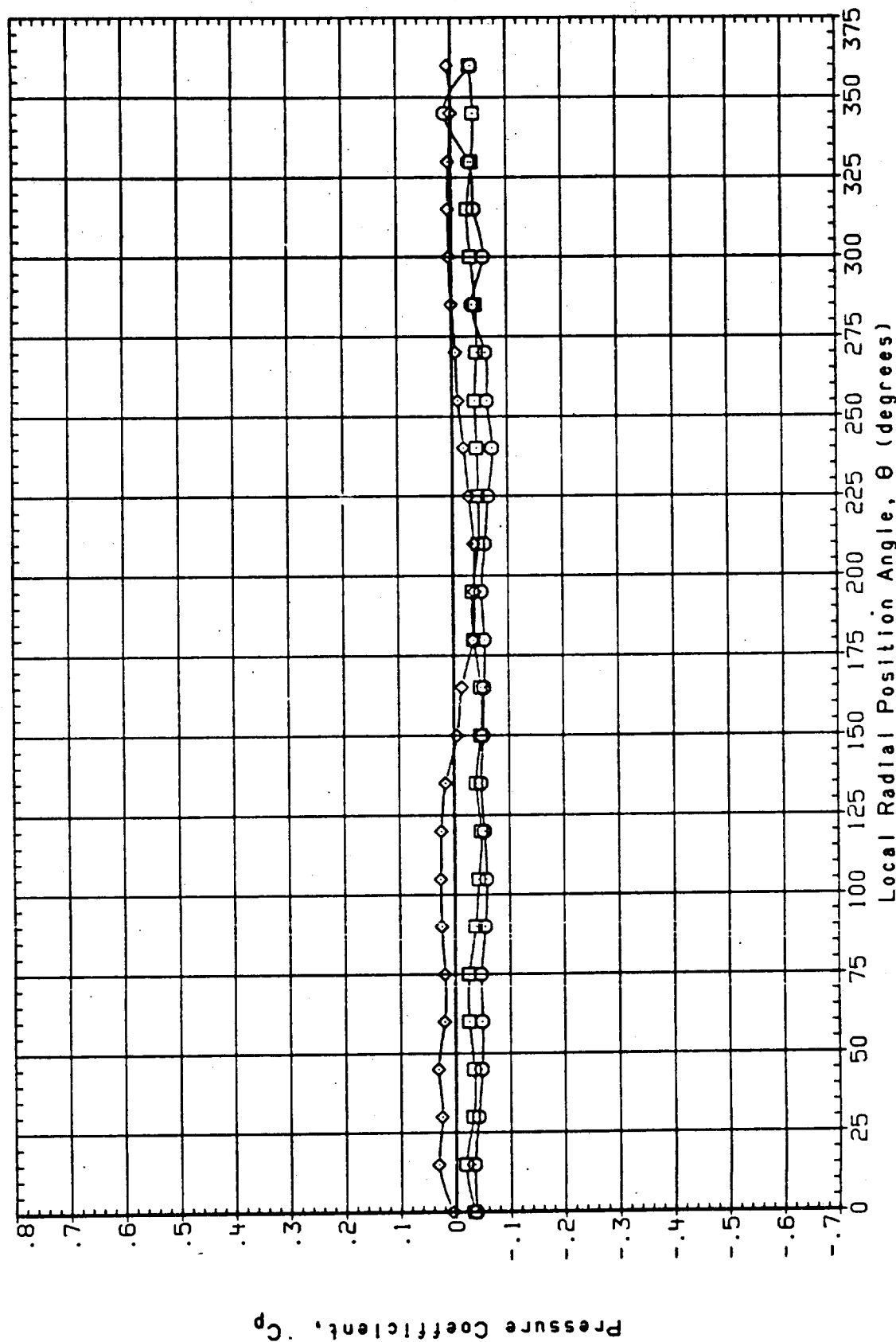


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) IA1908, L02 FEEDLINE, RAMPS(1) ON

SYMBOL BETA XT ALPHA
 O -4.000 1700.000 .000
 O -4.000 .000
 O 4.000

PARAMETRIC VALUES
 MACH 18-ELV
 2.000 8.000 600.000
 Q(PSF) 08-ELV -5.000

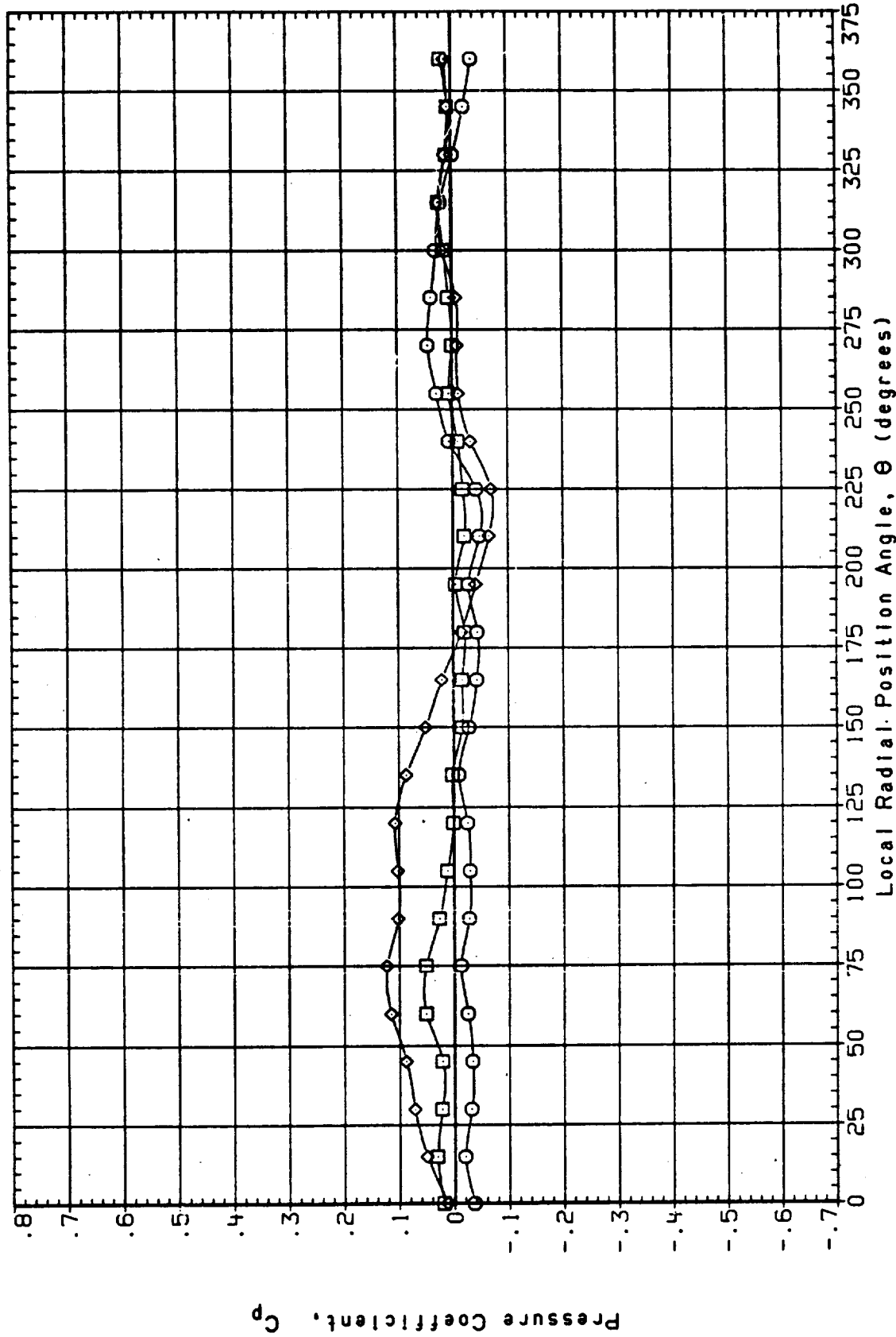


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) IA190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL BETA XT ALPHA
 □ -4.000 1800.000 .000
 ◇ .000 4.000

PARAMETRIC VALUES
 MACH 18-ELV
 Q(PSF) 2.000 8.000 600.000
 OB-ELV -5.000

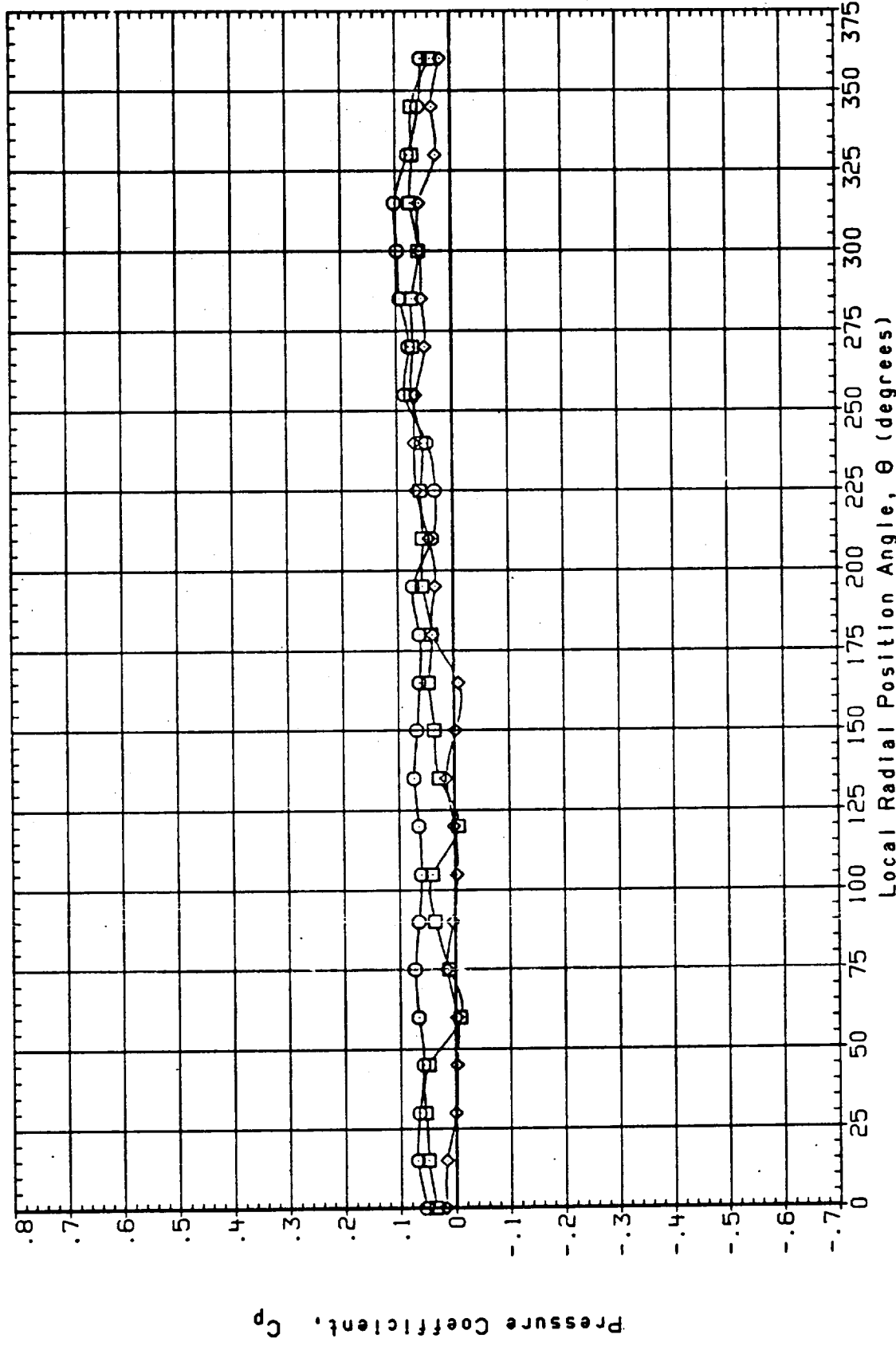


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) 1A190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL	BETA	XT	ALPHA	MACH	PARAMETRIC VALUES
□	-4.000	1900.000	.000	18-ELV	2.000 0(PSF) 600.000
◇	.000				8.000 08-ELV -5.000

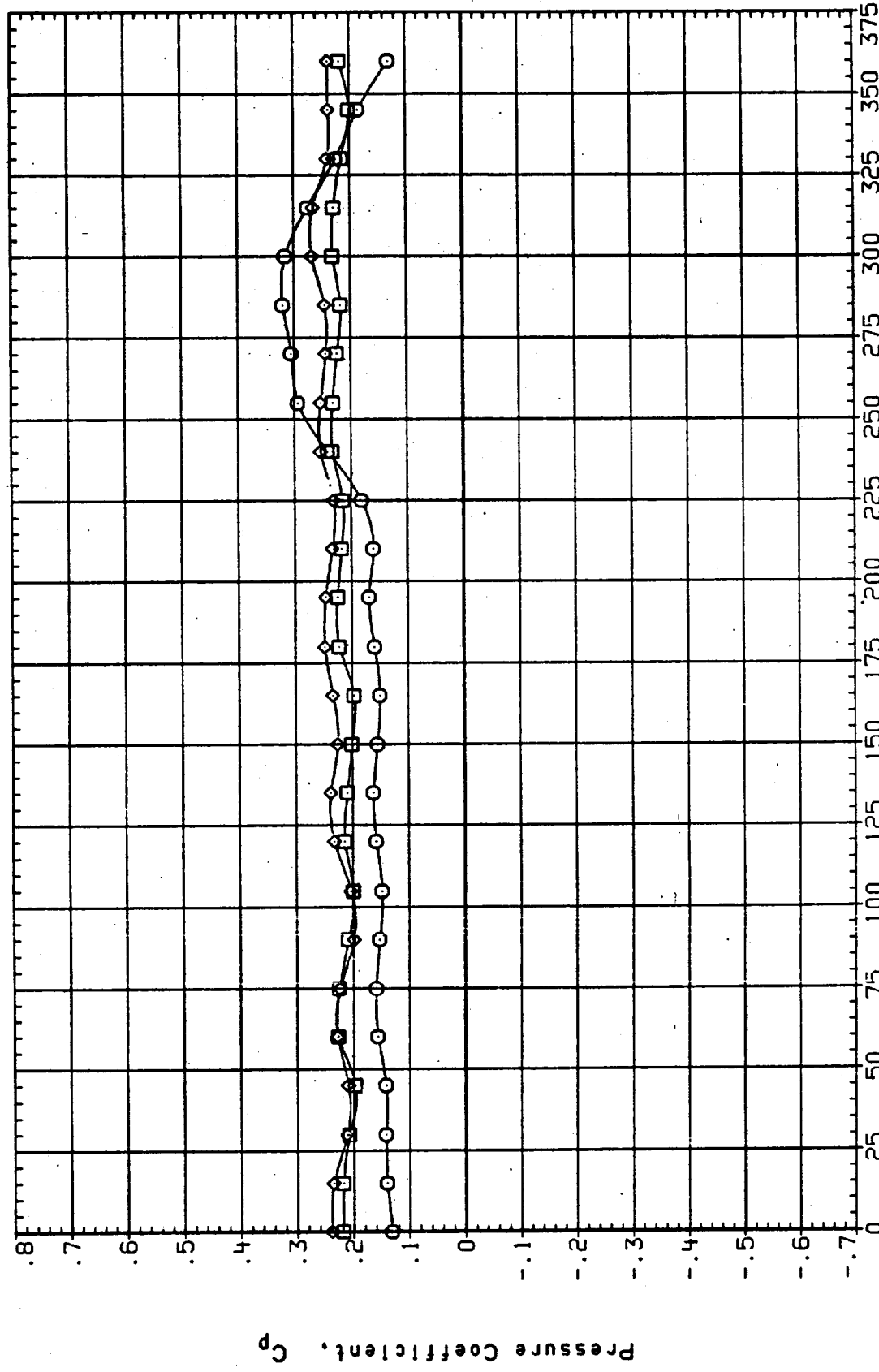


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13VL05) 1A190B, LO2 FEEDLINE, RAMPS(1) ON

SYMBOL	BETA	XT	ALPHA	MACH	PARAMETRIC VALUES
□	-4.000	1950.000	.000	1B-ELV	2.000 Q(PSF) 600.000
◇	.000			0B-ELV	8.000 -5.000

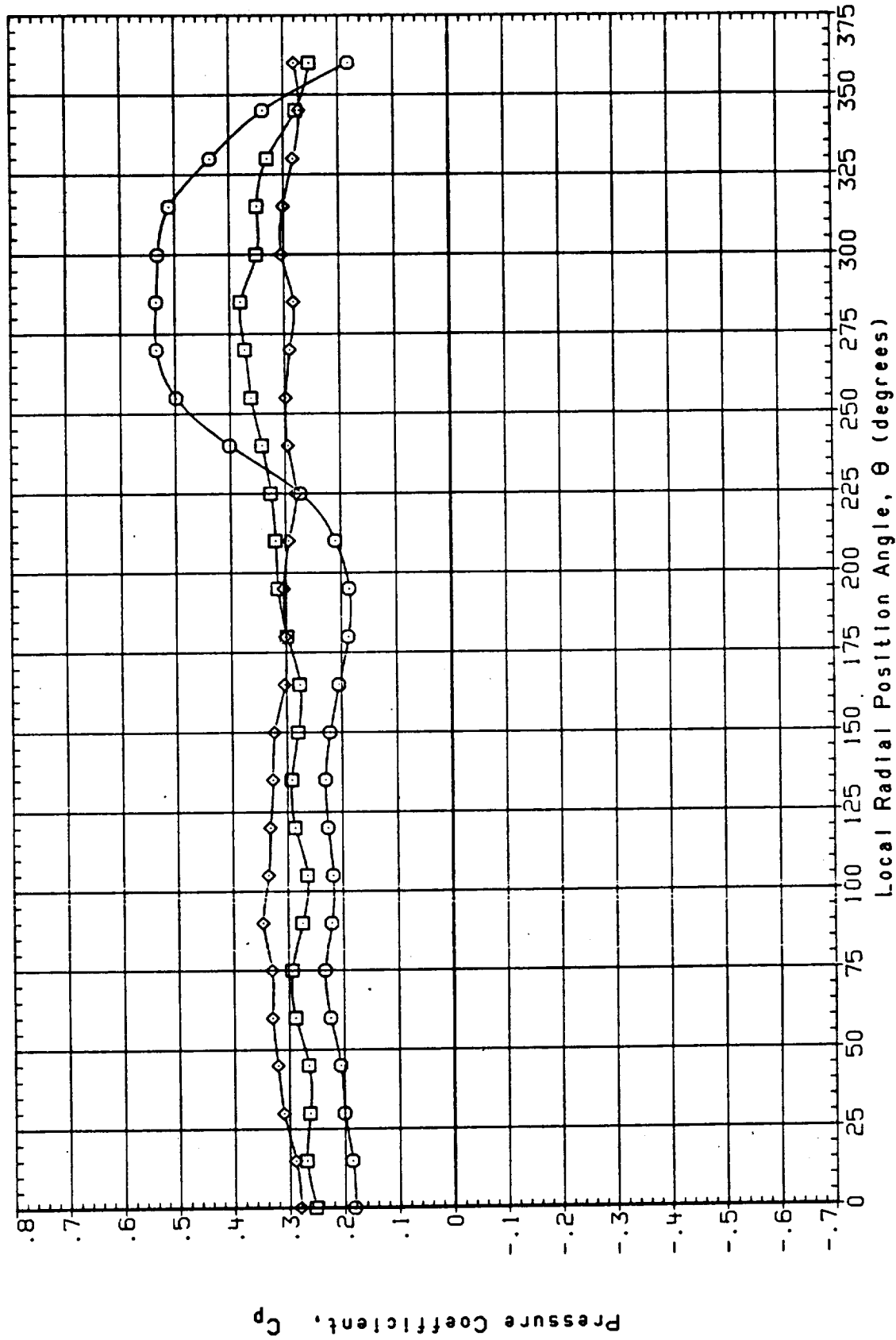


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 FEED LINE

(13VL05) 1A190B, L02 FEEDLINE, RAMPS(1) ON

SYMBOL BETA XT ALPHA
-4.000 2000.000 .000
4.000

PARAMETRIC VALUES
MACH 2.000 600.000
1B-ELV 0(PSE) 08-ELV -5.000

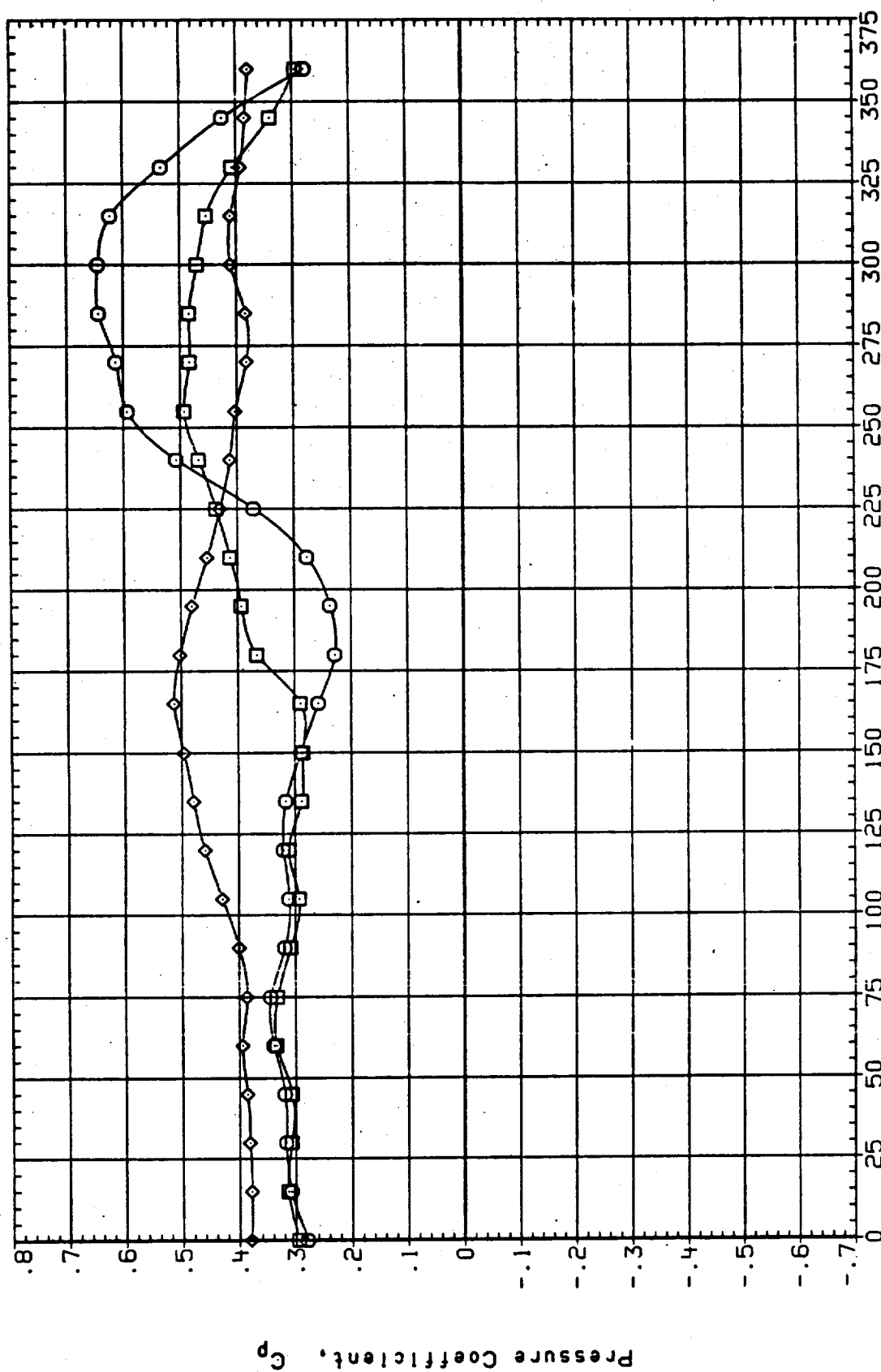


FIGURE 22. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 FEED LINE

(13UI27) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL
 BETA
 -4.000
 .000
 4.000

ALPHA
 .000

MACH
 OB-ELV
 9.000
 10.000
 10.000

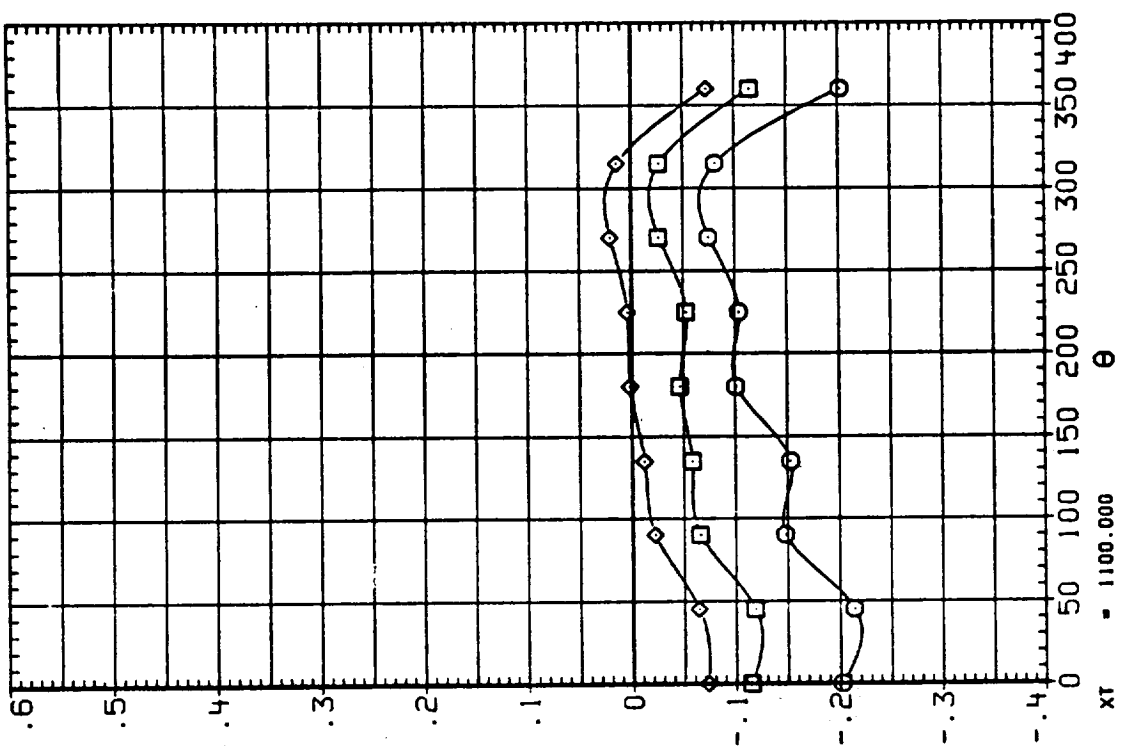
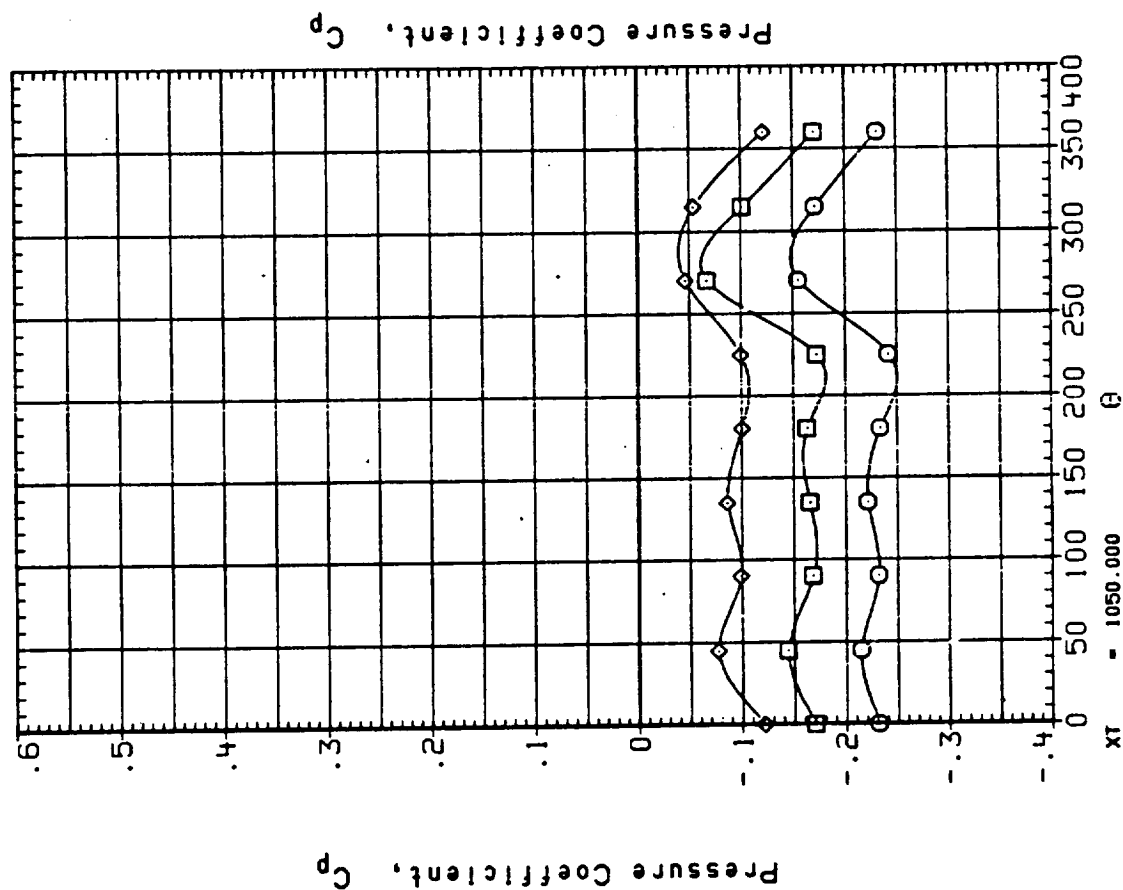


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13UI27) 1A190A, LO2 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 □ -4.000
 ◇ -4.000
 ○ .000
 △ 4.000

ALPHA
 .000

MACH
 08-ELV

PARAMETRIC VALUES

18-ELV 10.000
 GAP .000

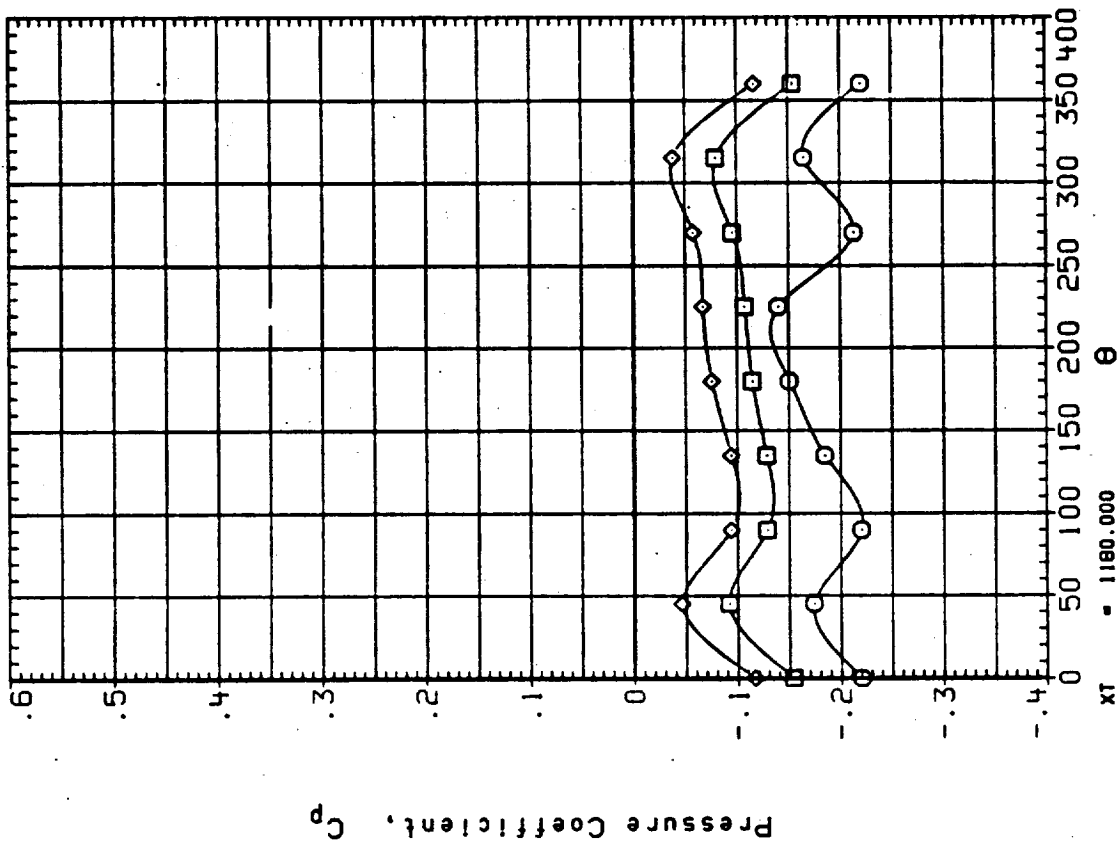
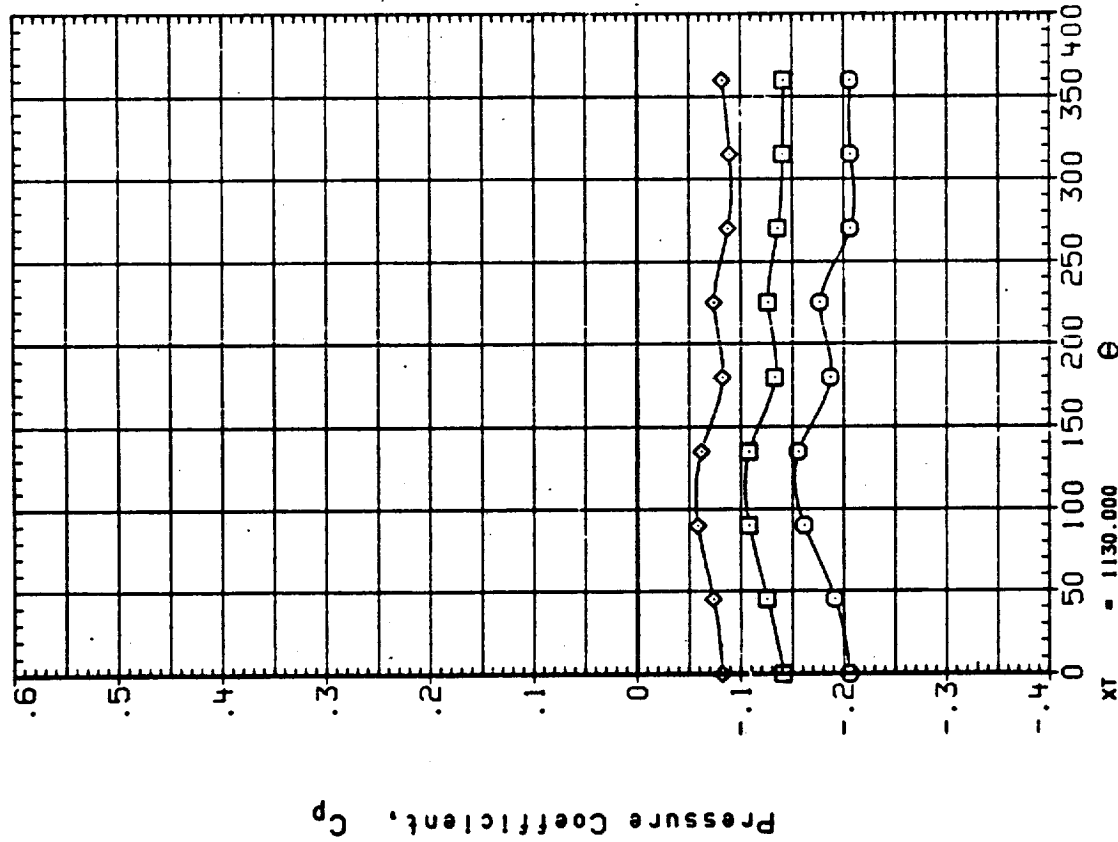


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 ANTIGEYSER LINE

(13U127) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA ALPHA
 ◊ -4.000 .000
 □ -4.000 .000
 ○ -4.000 .000

PARAMETRIC VALUES

MACH 08-ELV 10.000
 09-ELV 9.000
 10-ELV 8.000

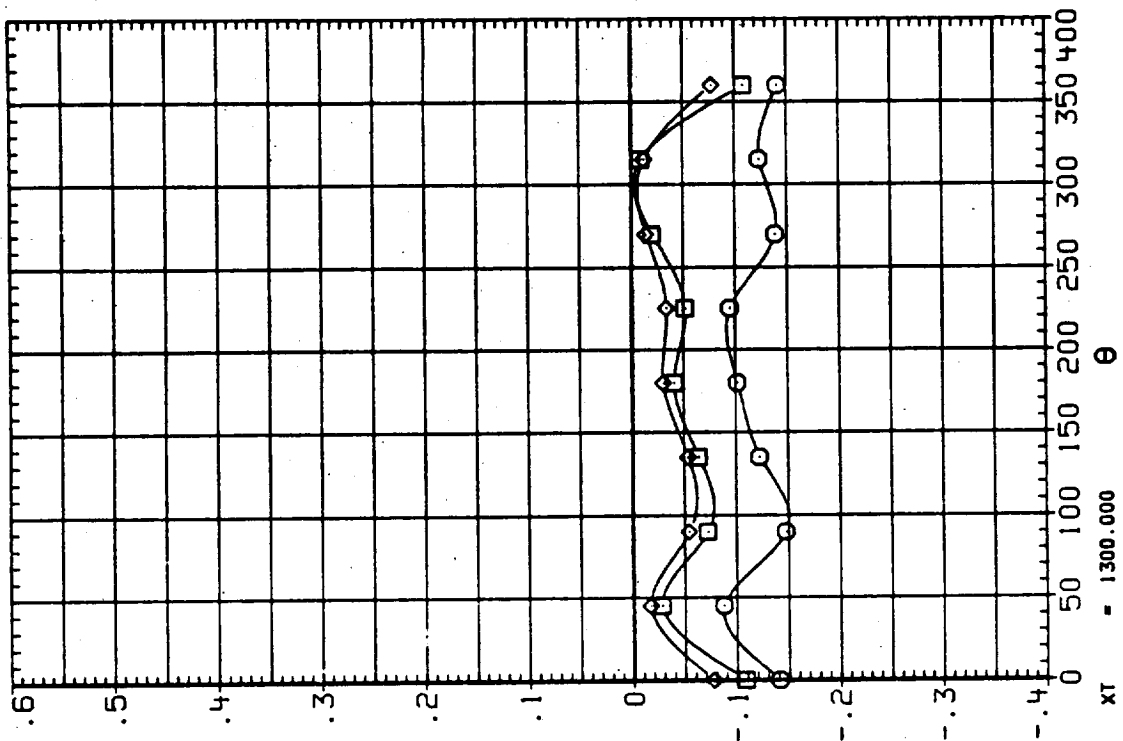
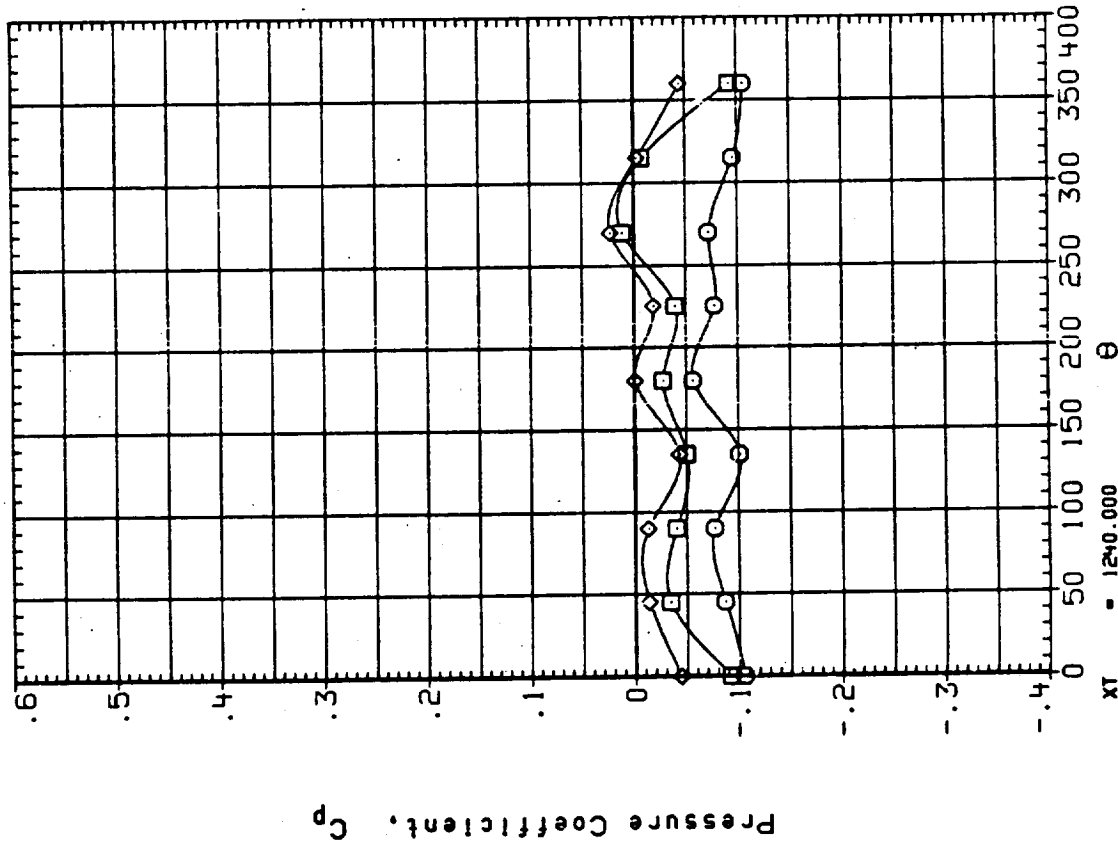


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13U127) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 ○ -4.000
 □ .000
 ◇ 4.000

ALPHA
 .000

MACH
 08-ELV

PARAMETRIC VALUES
 .600 10.000
 9.000 .000

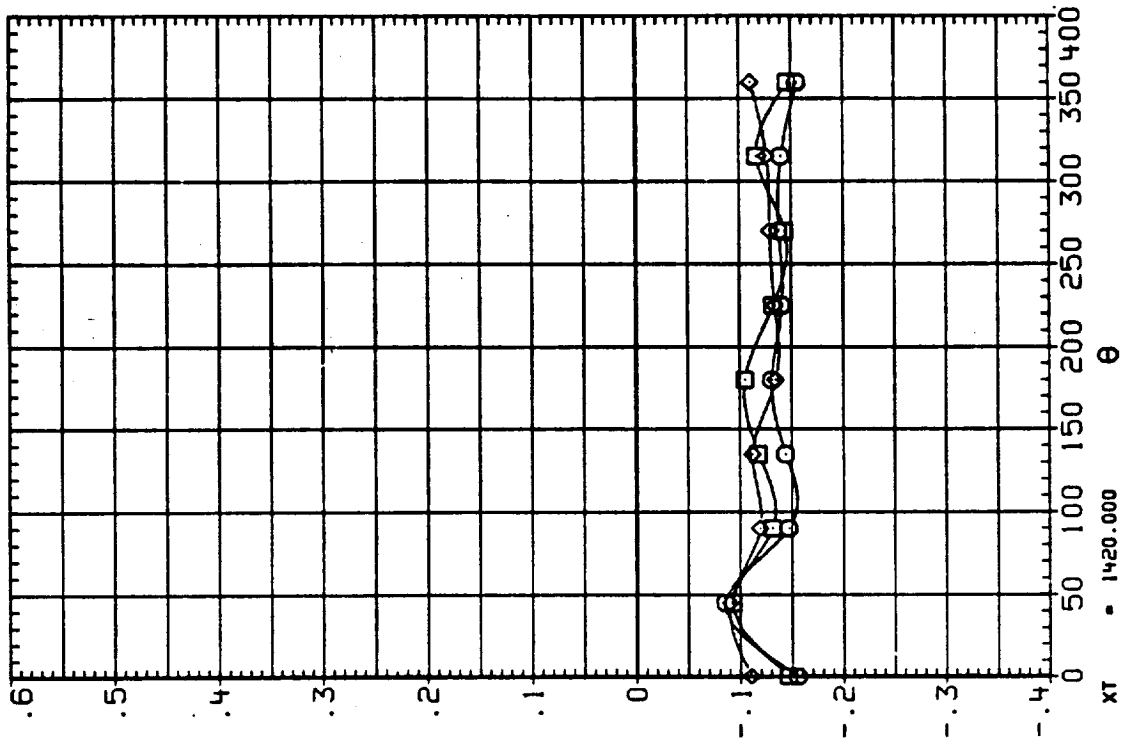
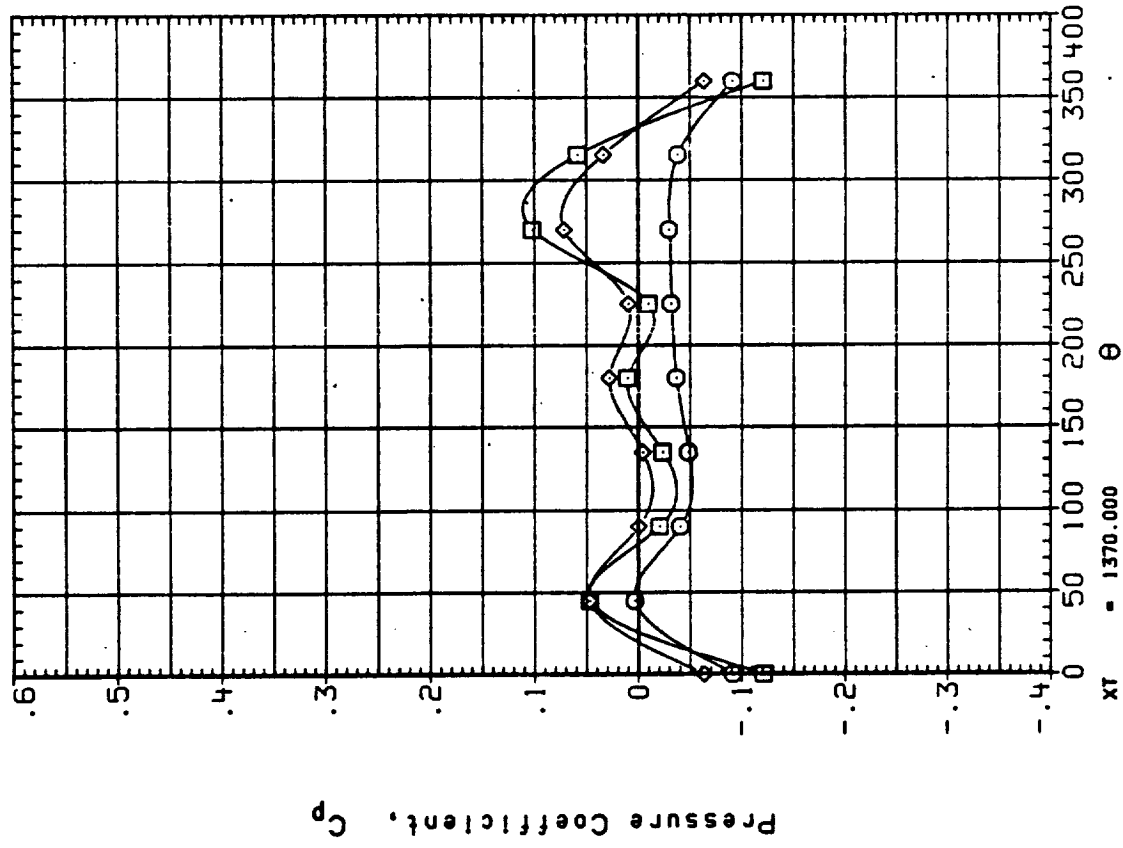


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13UI27) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL \diamond
BETA
-4.000
.000
4.000

ALPHA
.000

MACH
08-ELV

PARAMETRIC VALUES
.600 10.000
9.000 .000
IB-ELV
GAP

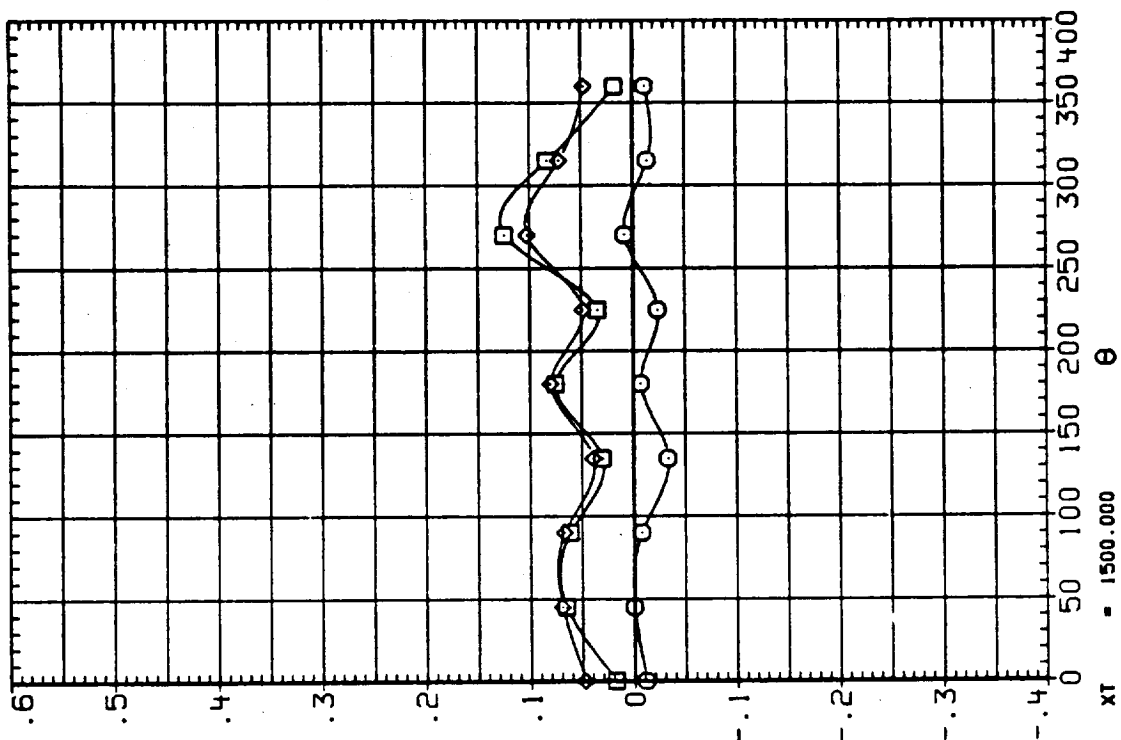
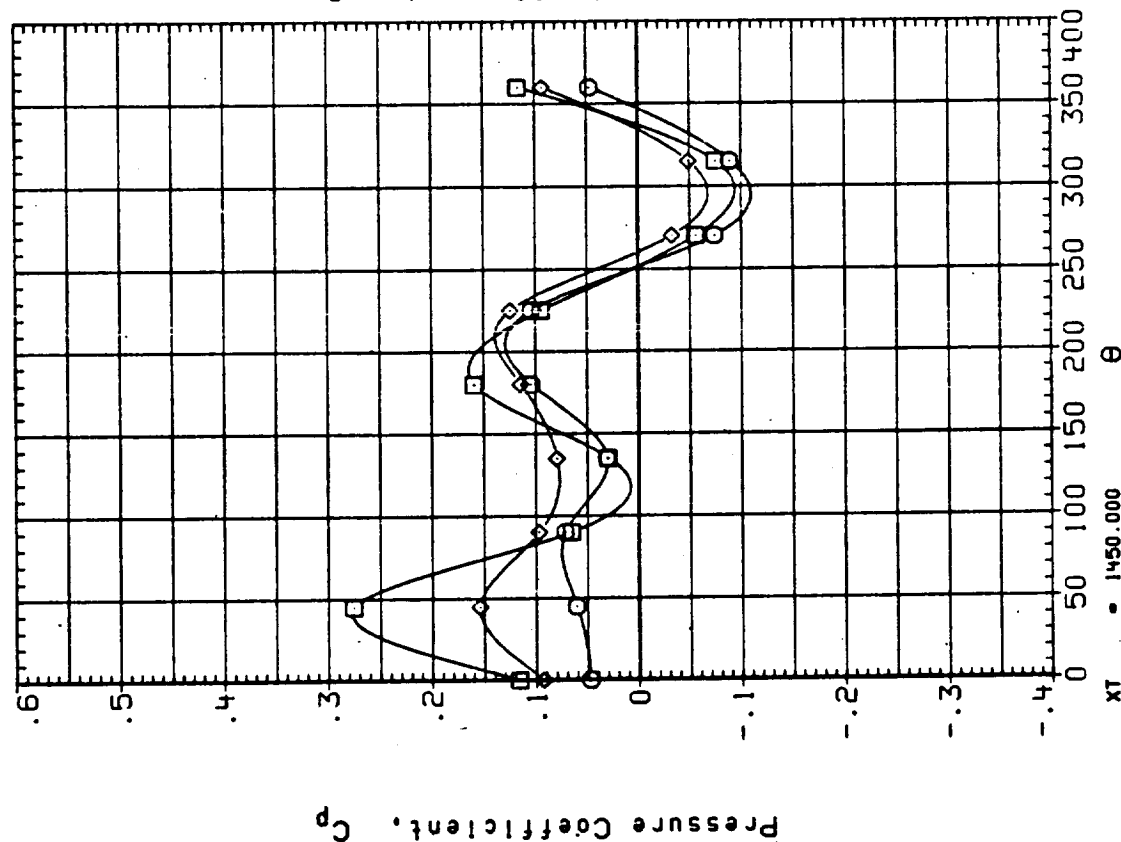


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13U127) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 ◇ -4.000
 □ .000
 ○ 4.000

ALPHA
 .000

PARAMETRIC VALUES
 MACH 9.000 10.000
 OB-ELV 9.000 10.000
 GAP .000

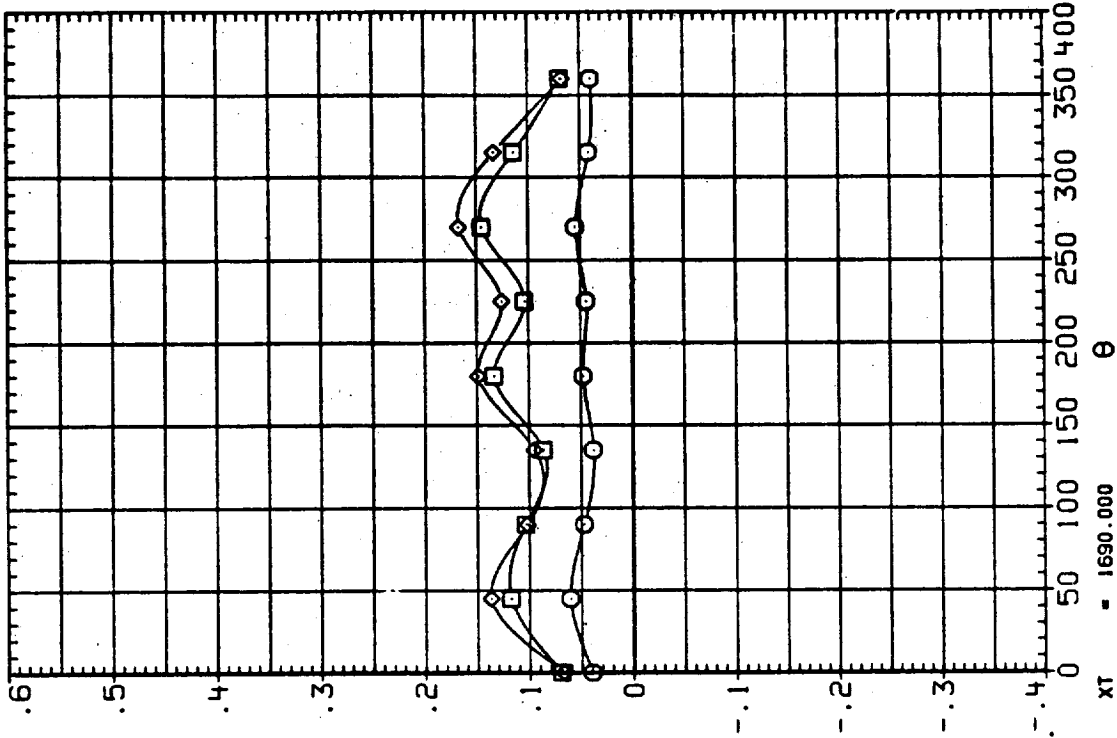
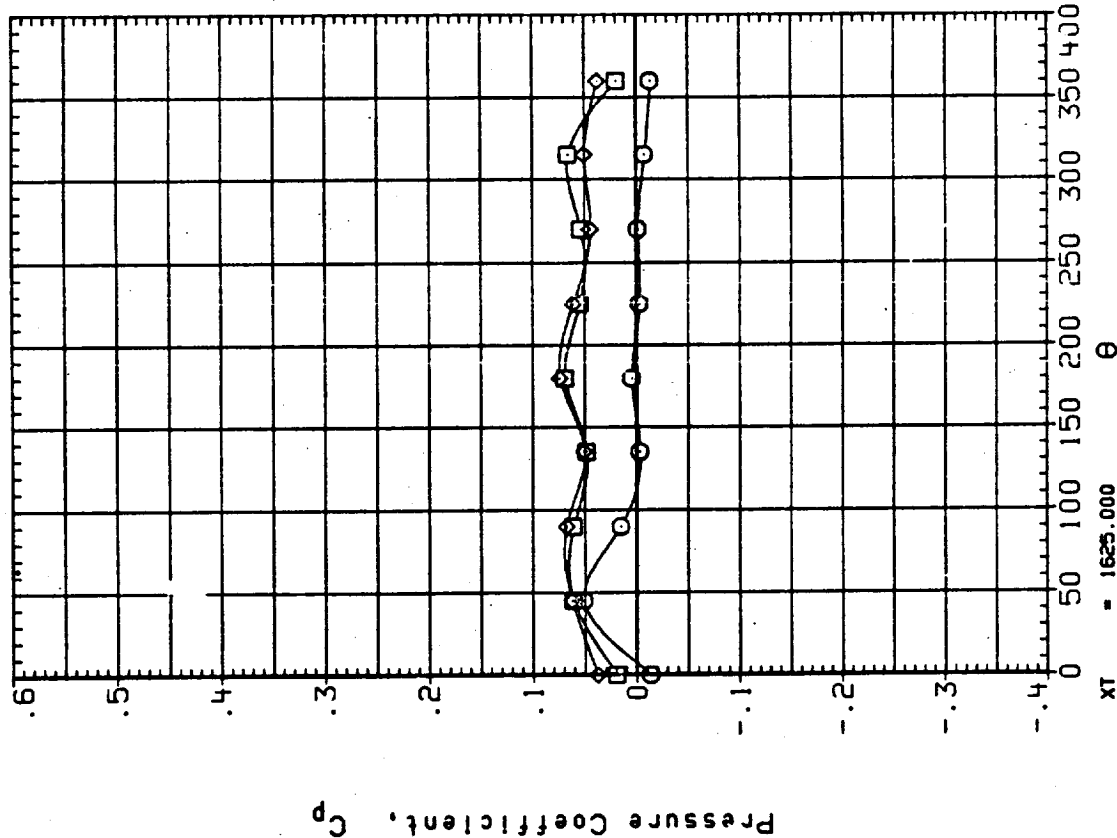


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13U127) 1A190A, L02 ANTI GEYSER LINE, . . . MPS ON

PARAMETRIC VALUES
 MACH 08-ELV 10.000
 .600 18-ELV .000
 9.000 GAP

SYMBOL BETA ALPHA
 -4.000 .000
 4.000

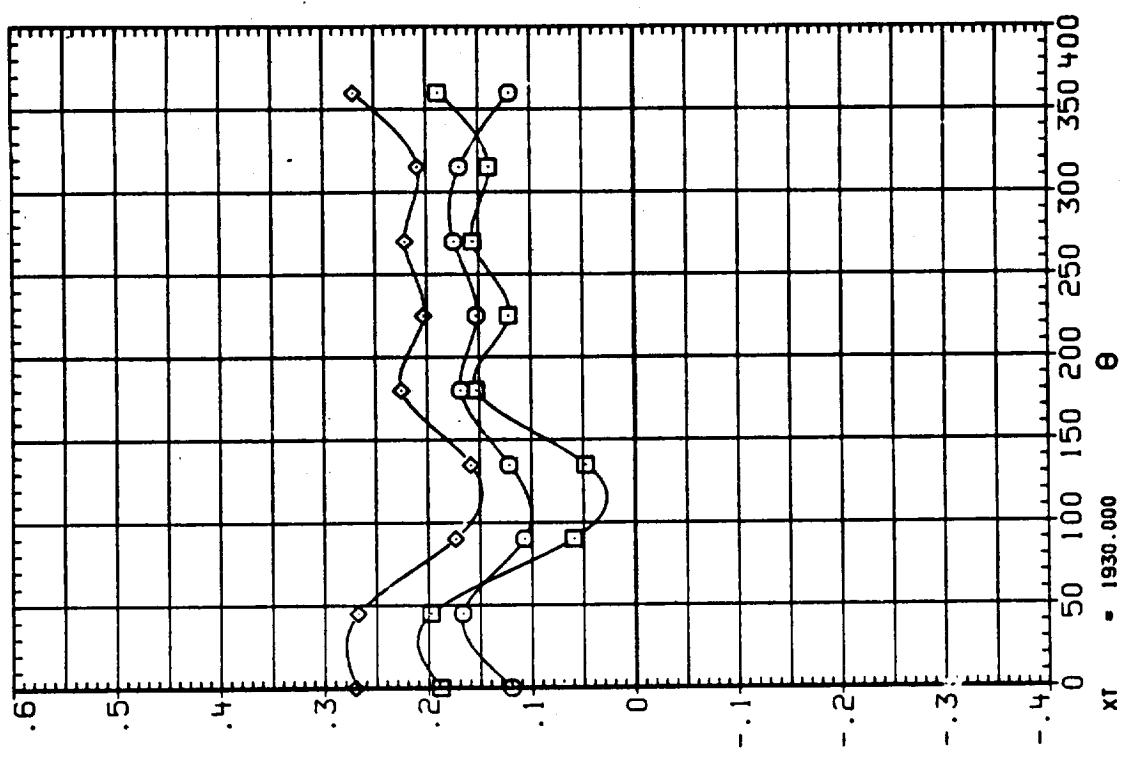
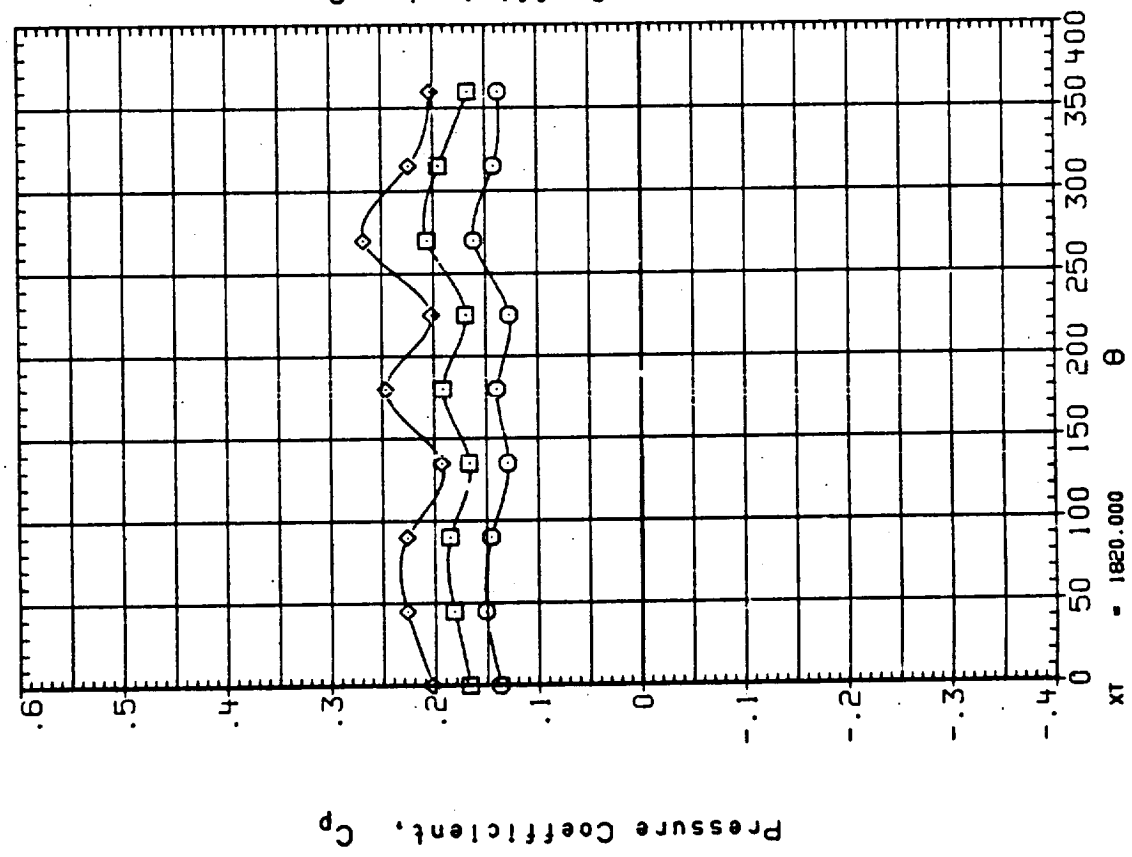


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13U127) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL

BETA
-4.000
4.000

ALPHA
.000

MACH
08-ELV

PARAMETRIC VALUES
.600 18-ELV
9.000 GAP

10.000
.000

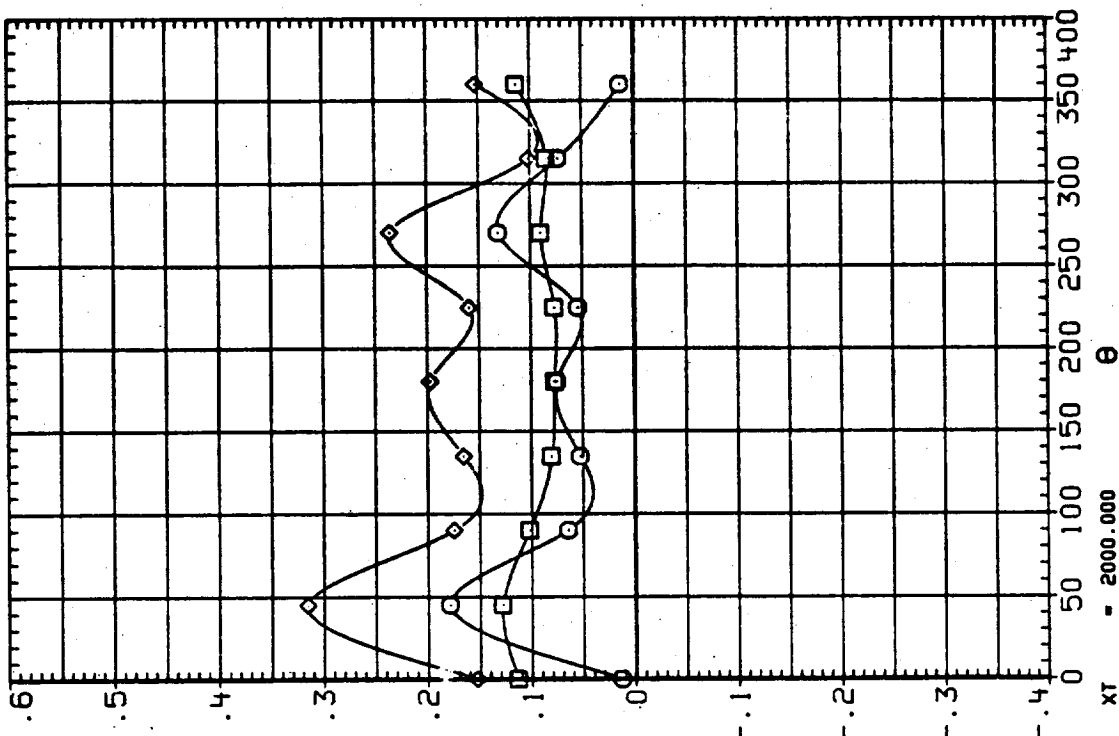
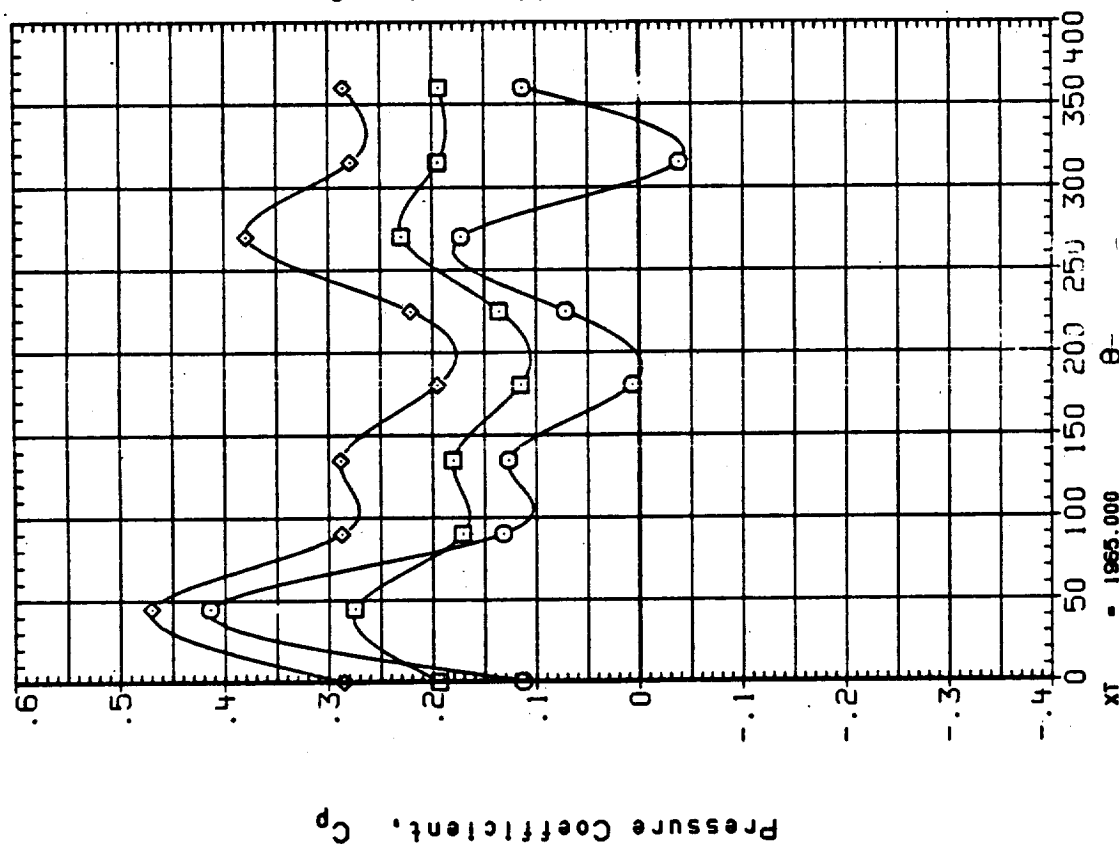


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13U130) 1A190A, L02 ANT. GEYSER LINE, RAMPS ON

SYMBOL
 BETA
 -4.000
 .000
 4.000

ALPHA
 .000

PARAMETRIC VALUES
 MACH 1.250 18-ELV 10.000
 08-ELV .000 GAP

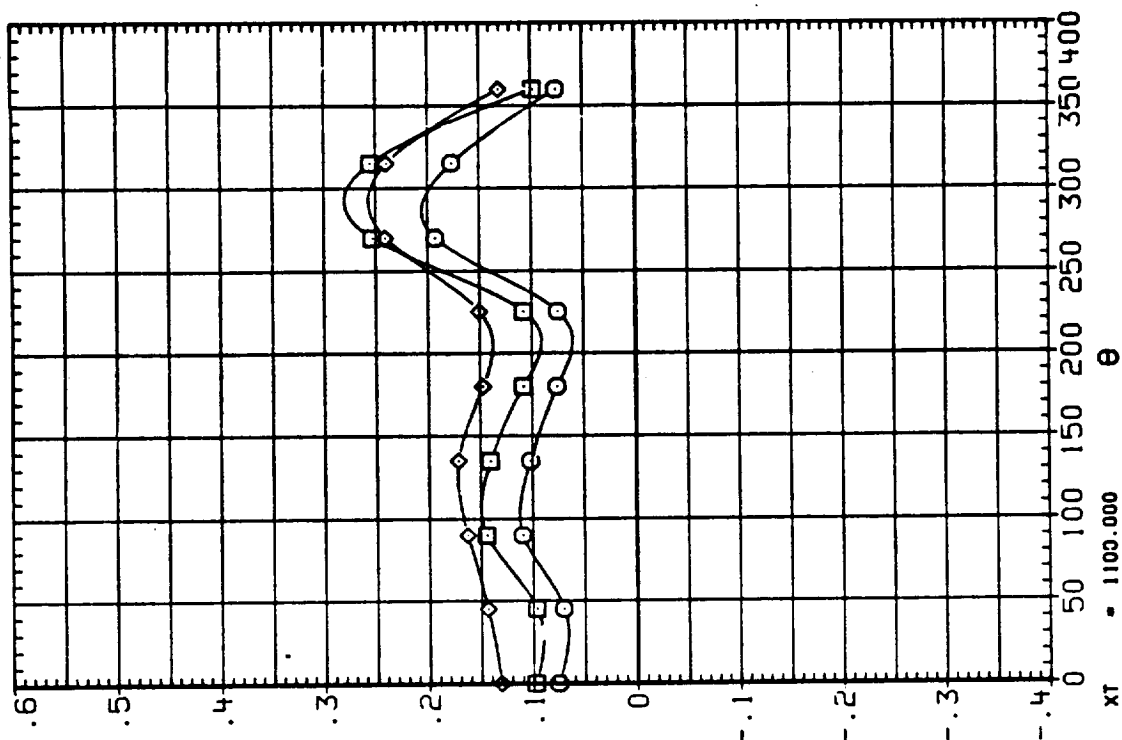
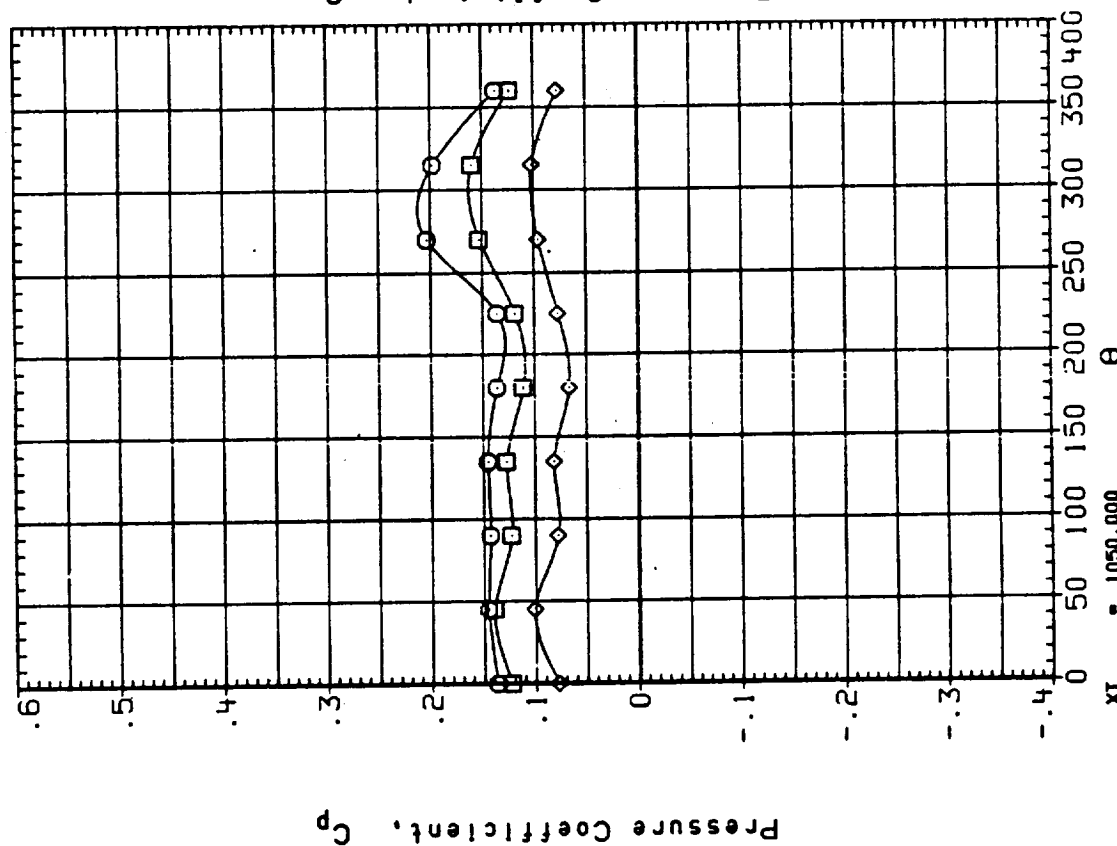


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13UI30) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 ◊ -4.000
 ○ .000
 □ 4.000

ALPHA
 .000

MACH
 08-ELV

PARAMETRIC VALUES
 1.250 18-ELV 10.000
 .000 GAP

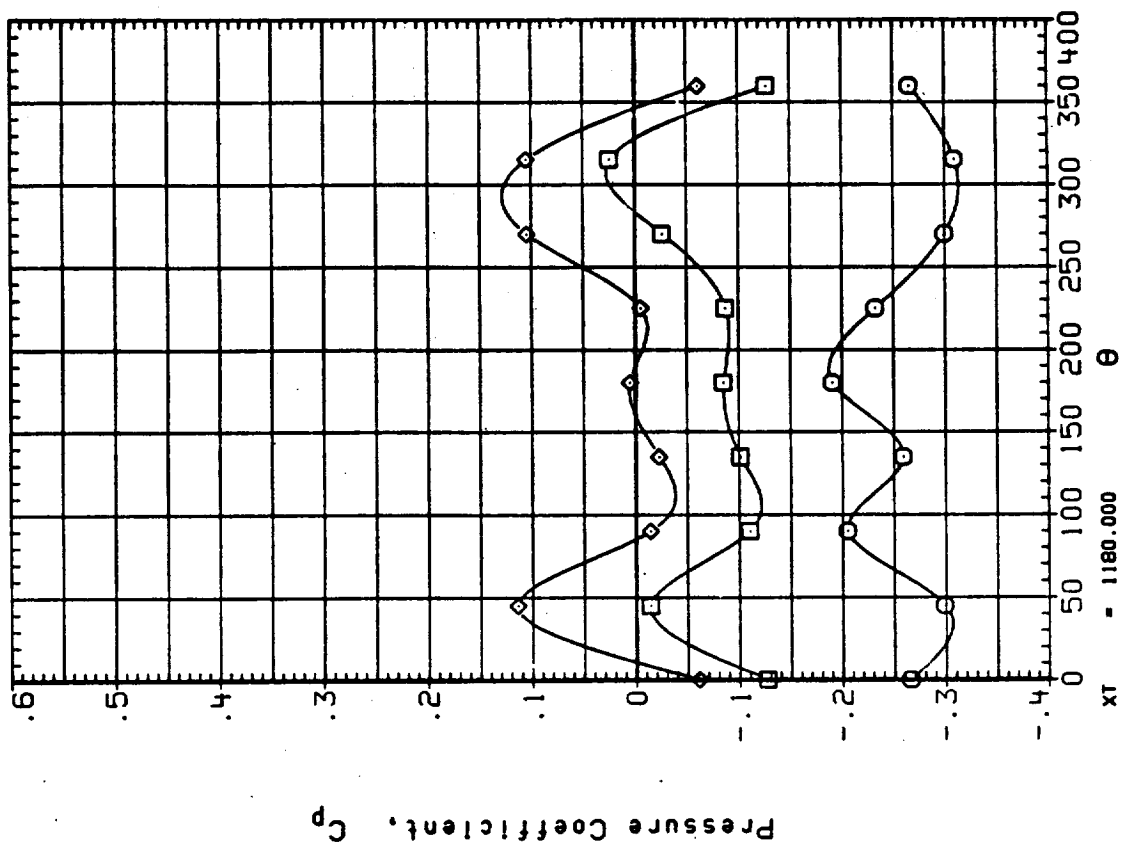
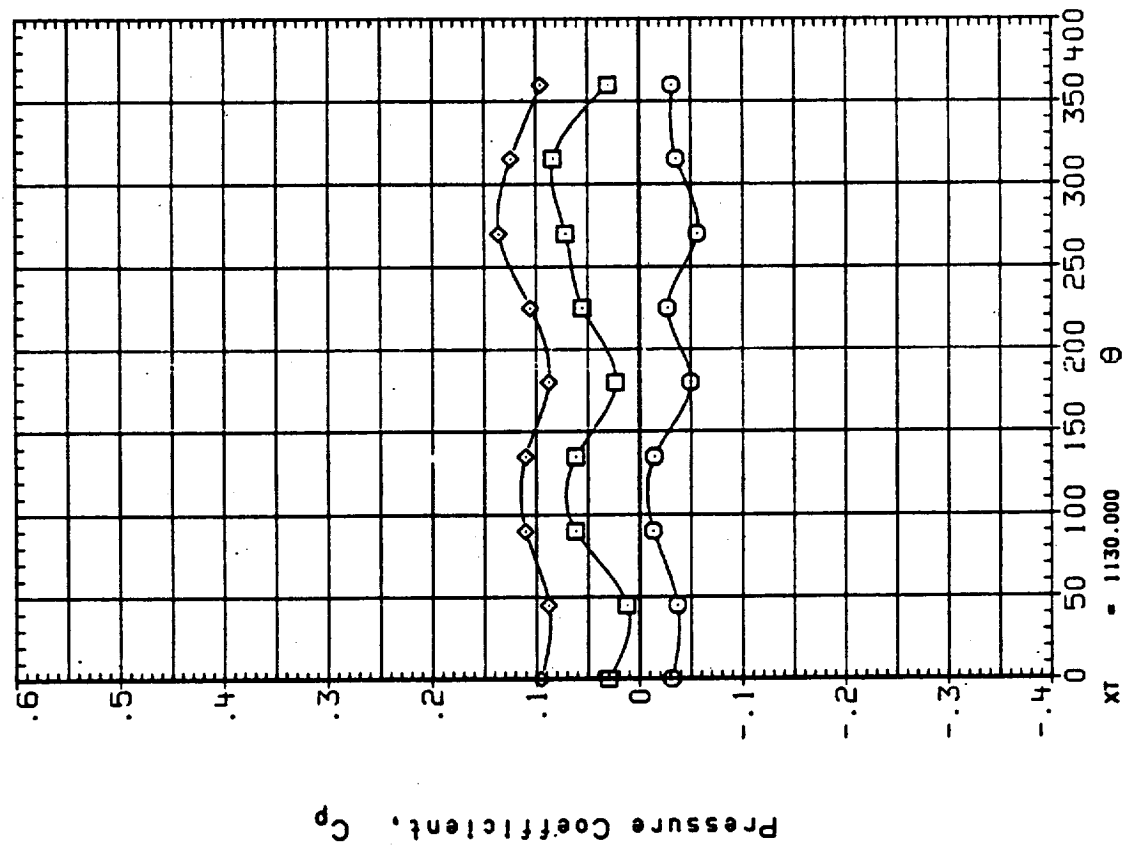


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13UI30) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 □ -4.000
 ◇ 4.000

ALPHA
 .000

MACH
 08-ELV

PARAMETRIC VALUES
 1.250 18-ELV
 .000 GAP 10.000

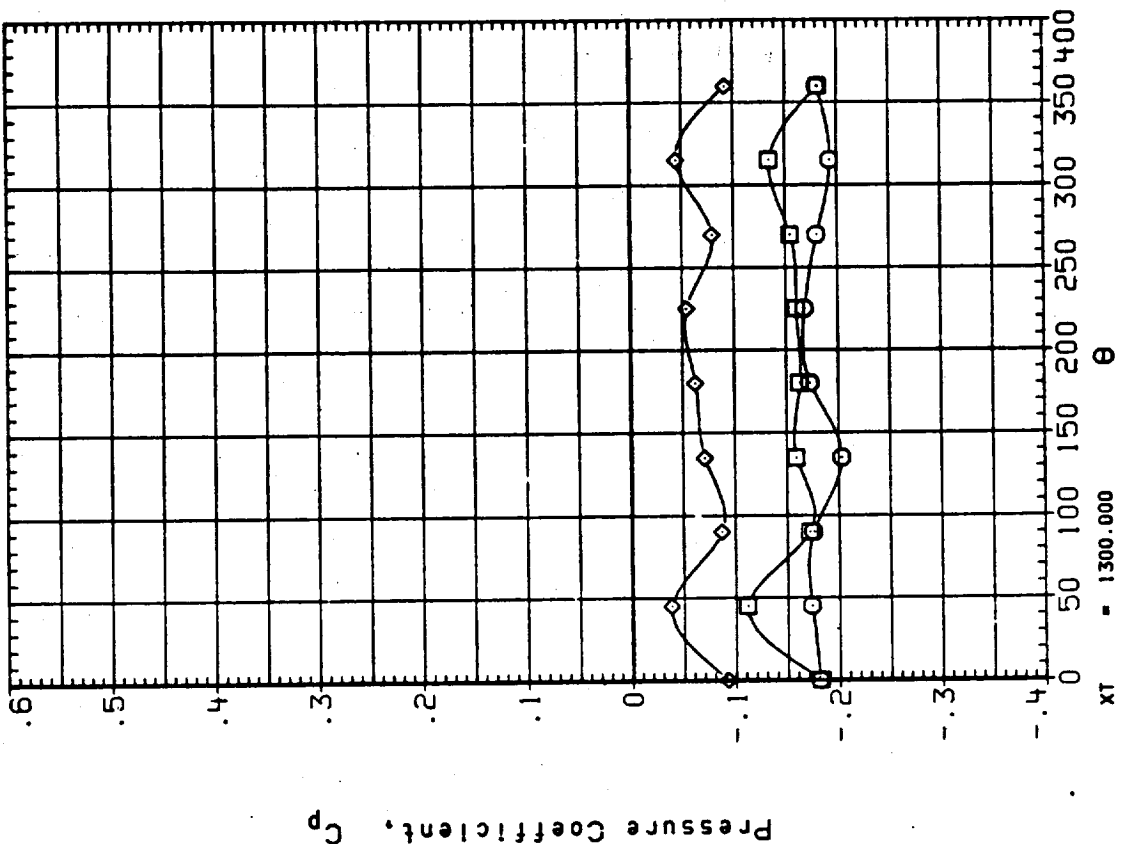
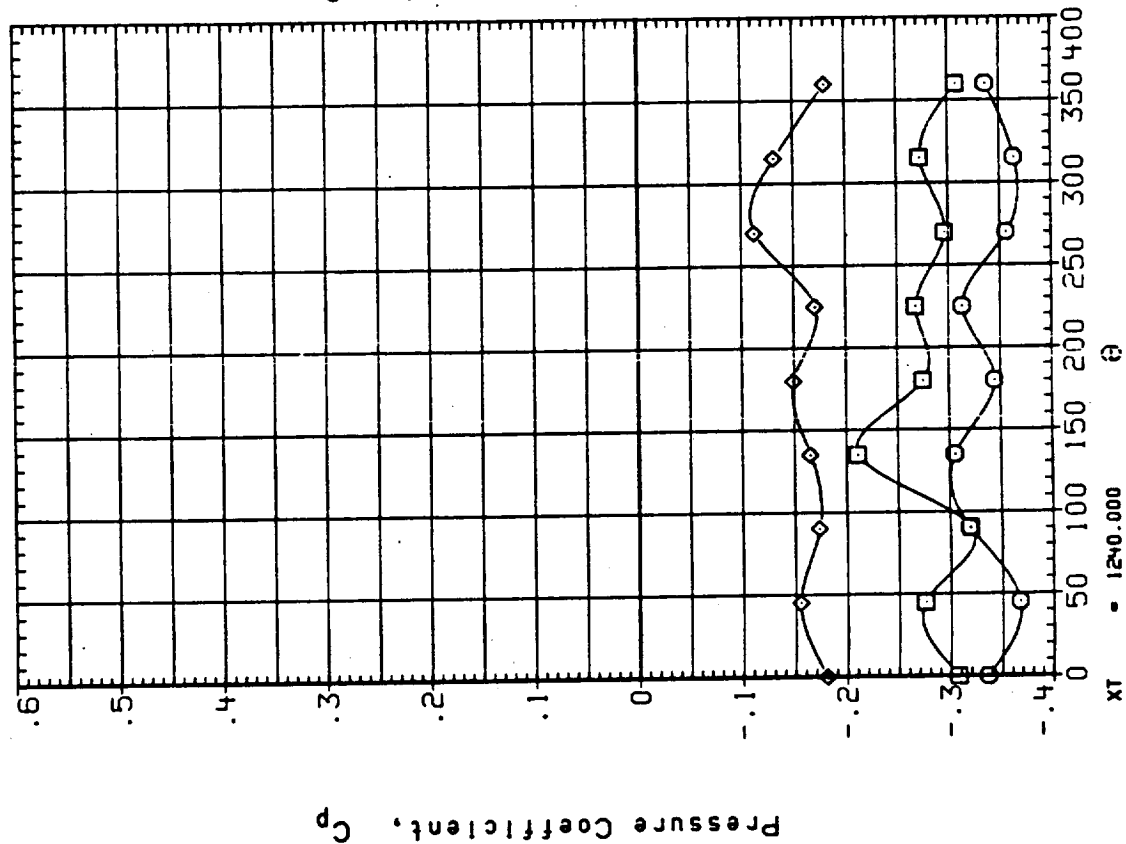


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13U130) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 □ -4.000
 ○ .000
 ◇ 4.000

ALPHA
 .000

PARAMETRIC VALUES
 1.250 18-ELV 10.000
 .000 GAP

MACH
 08-ELV

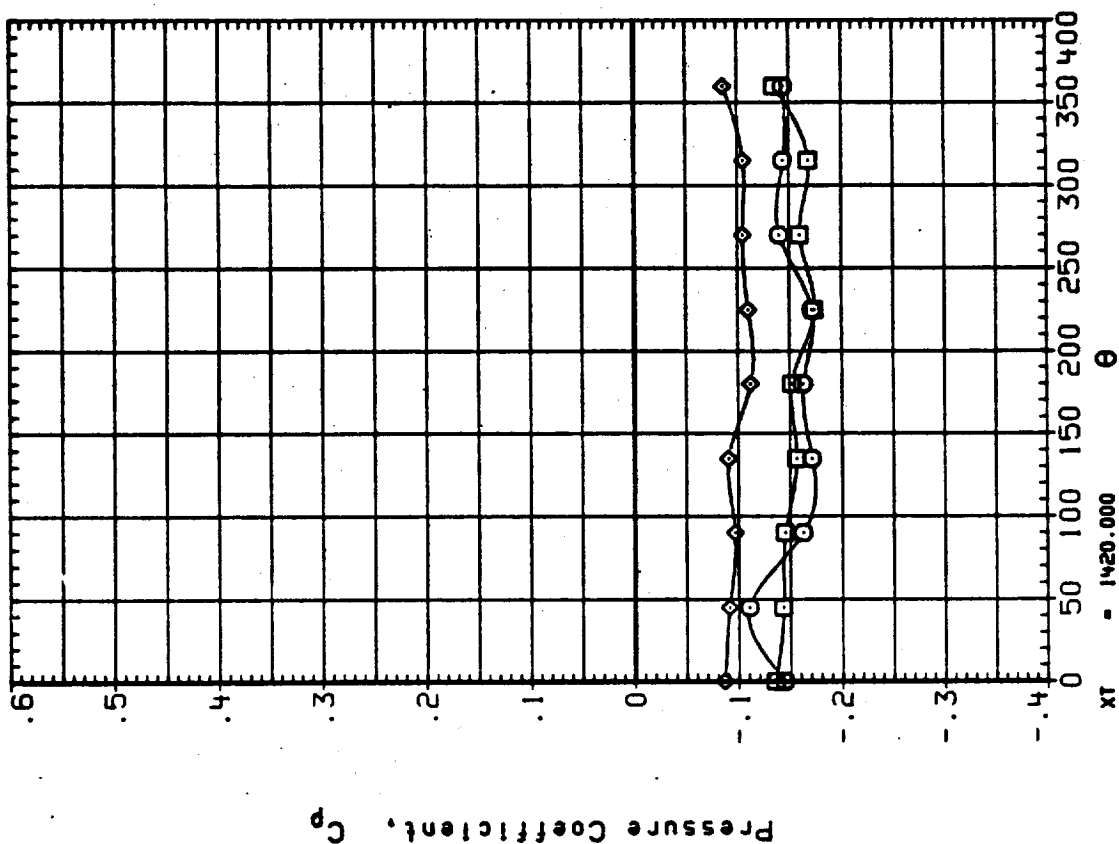
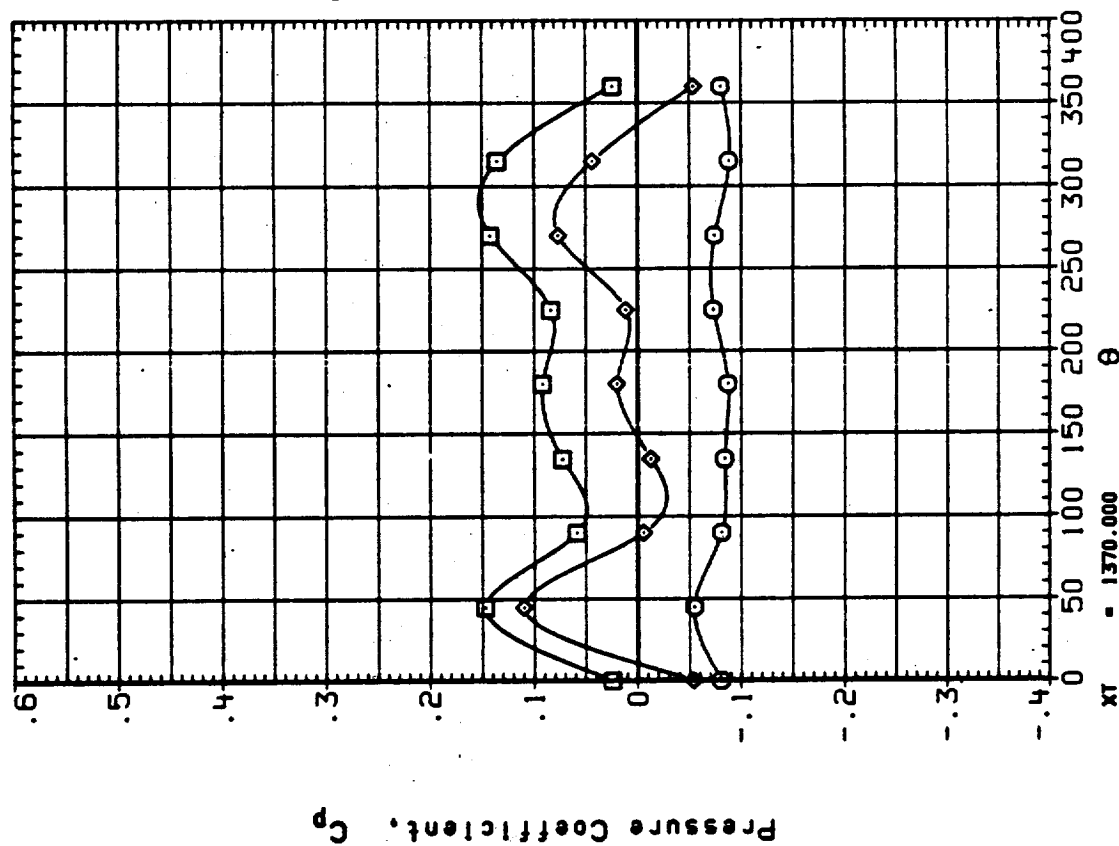


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13UI30) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 □ -4.000
 ○ .000
 ◇ 4.000

ALPHA
 .000

PARAMETRIC VALUES
 MACH 1.250 10.000
 OB-ELV .000 10.000
 GAP .000 .000

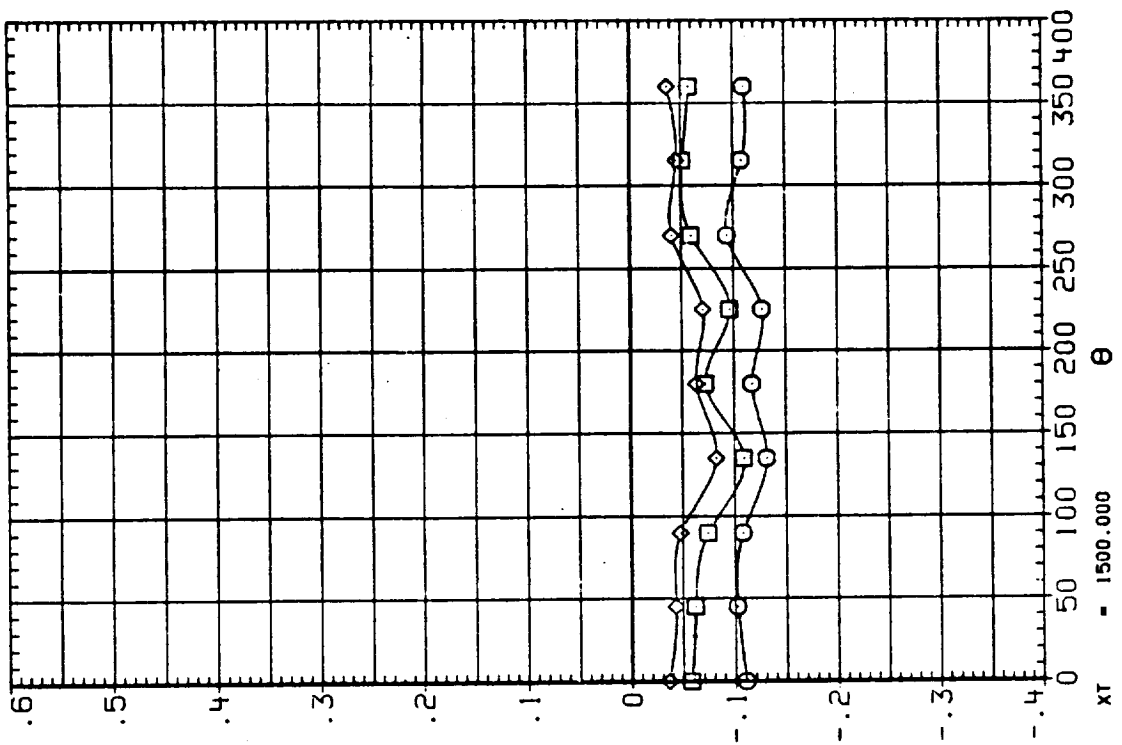
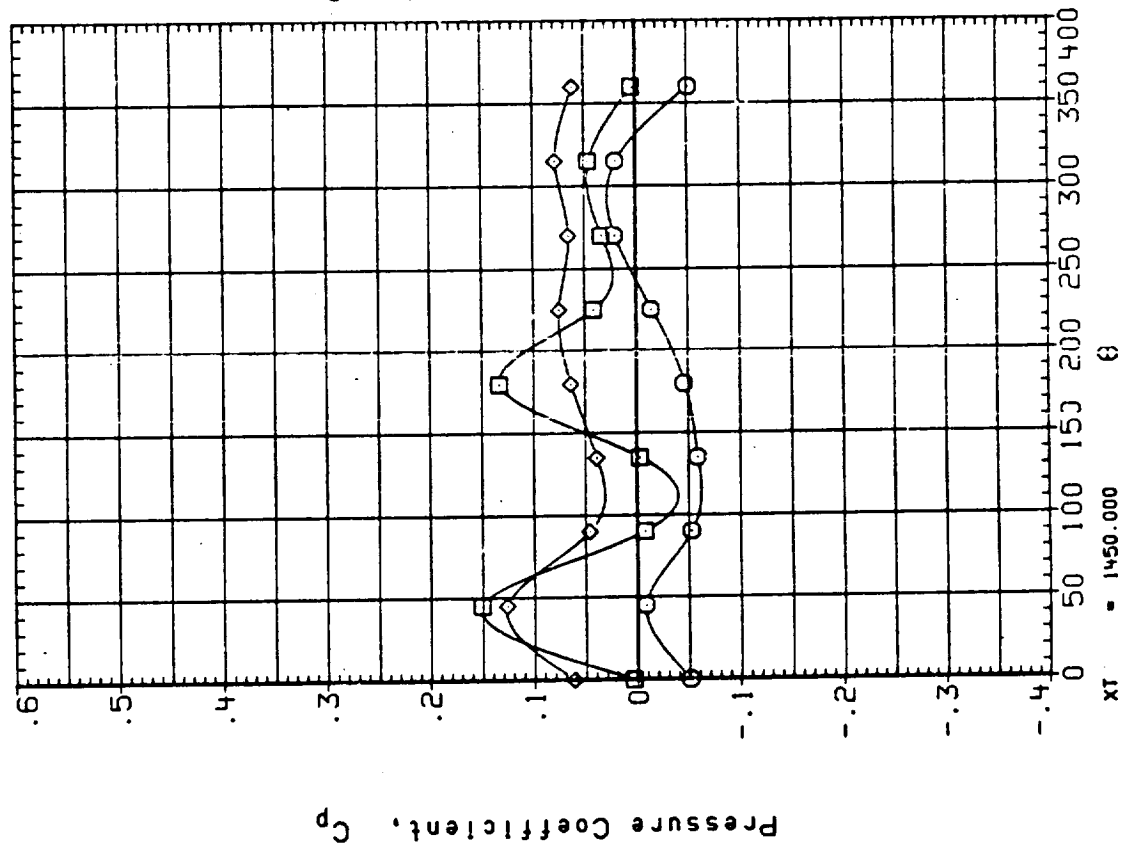


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13U130) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL
 □
 ◇

BETA
 -4.000
 .000
 4.000

ALPHA
 .000

RACH
 08-ELV

PARAMETRIC VALUES
 1.250 18-ELV 10.000
 .000 GAP .000

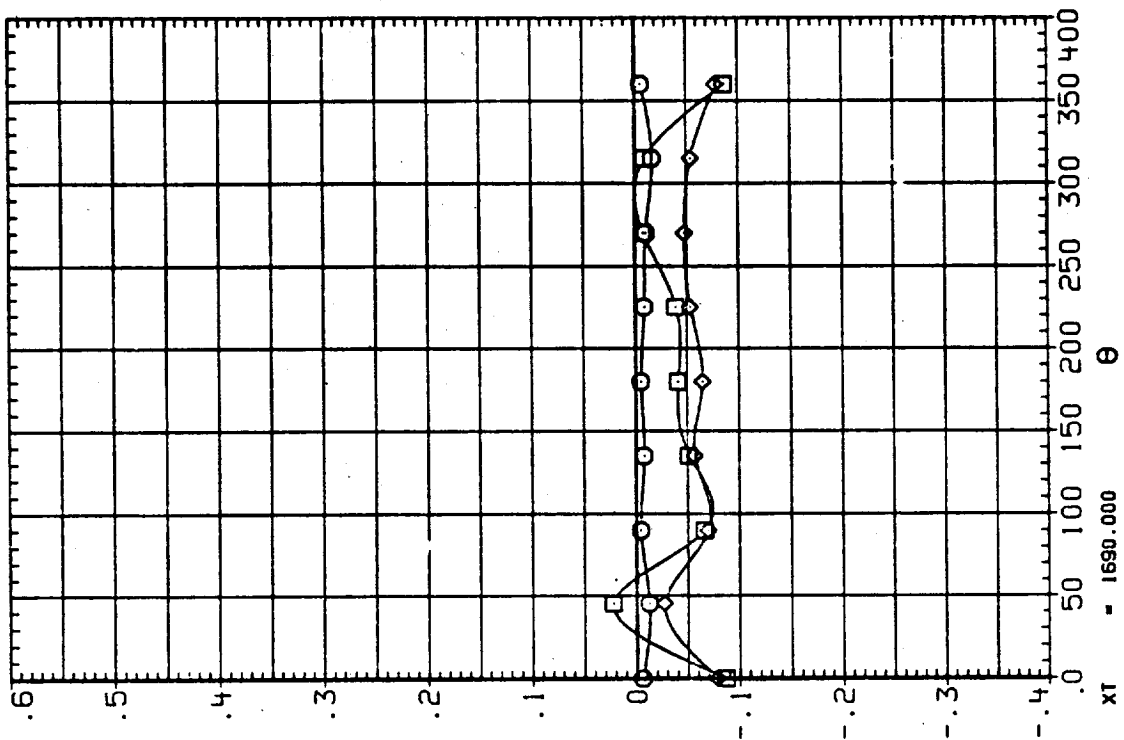
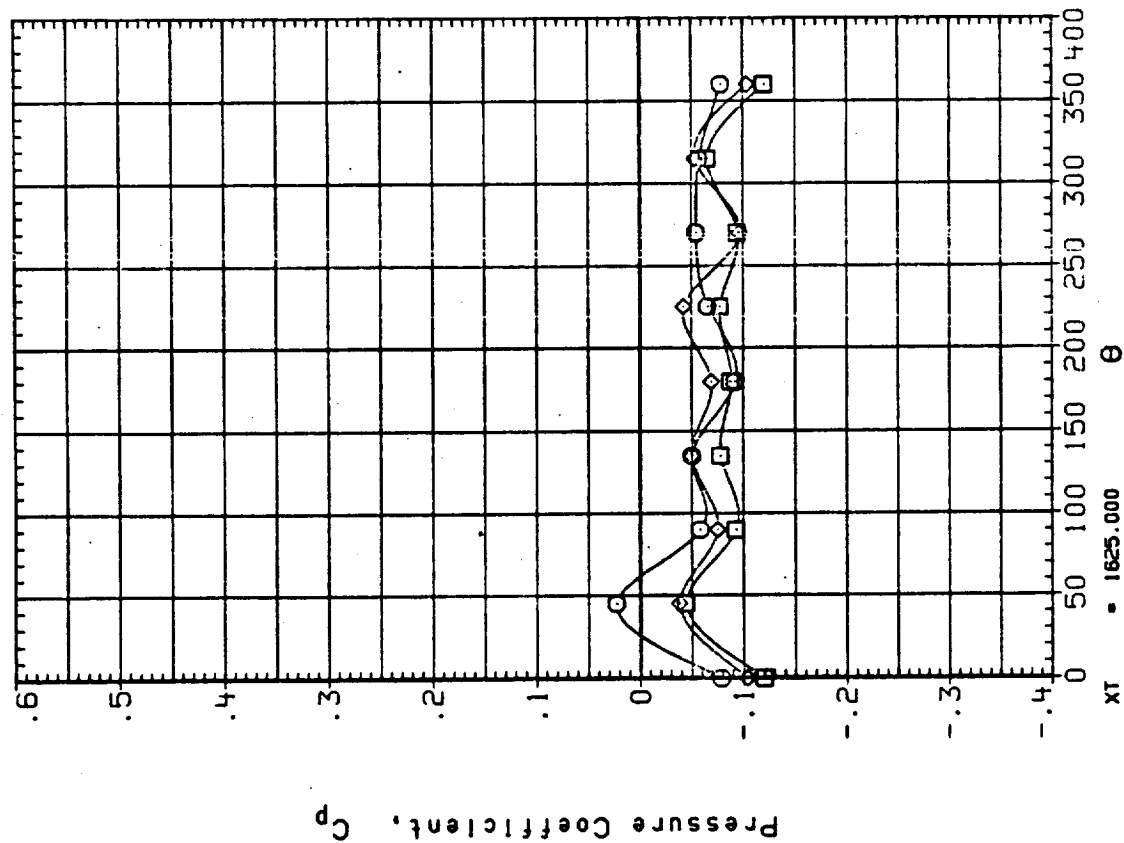


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13U130) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 □ -4.000
 ◇ .000
 4.000

ALPHA
 .000

PARAMETRIC VALUES
 MACH 10.000
 OB-ELV 1.250
 18-ELV .000
 GAP 10.000

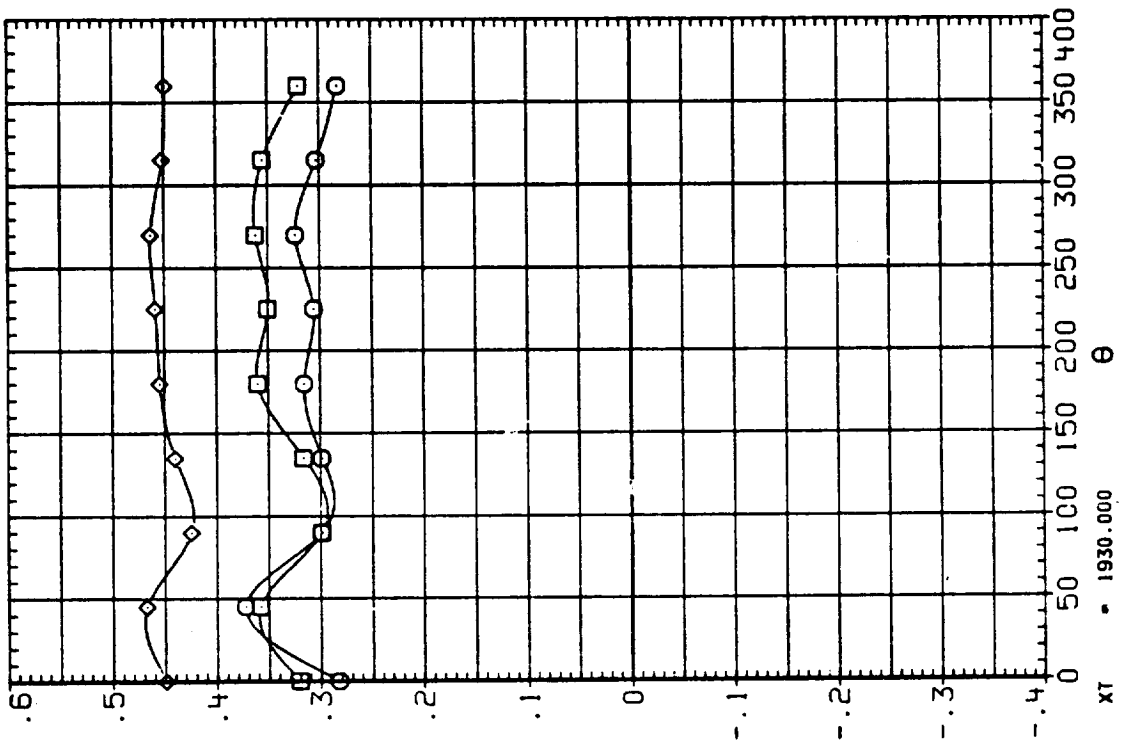
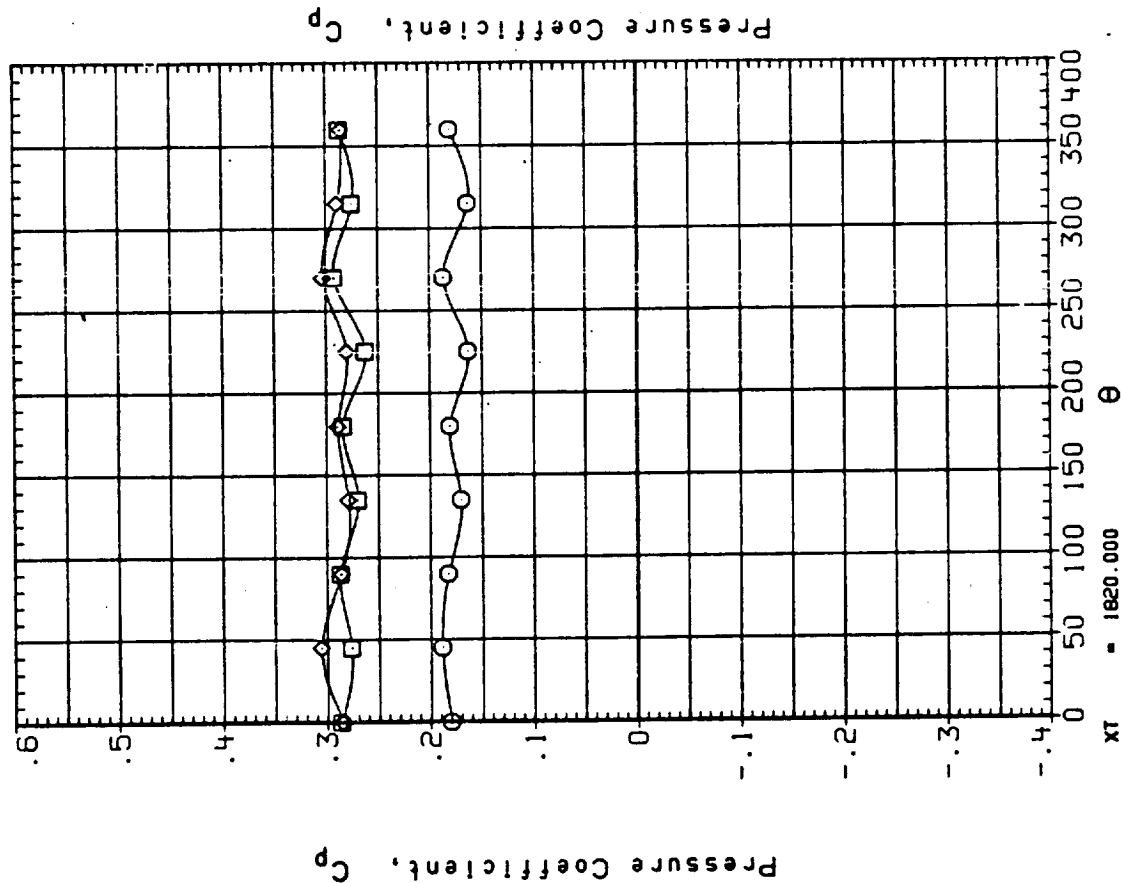


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(I3UI30) 1A190A, L02 ANTI GEYSER LINE, RAMPS ON

SYMBOL BETA
 ◊ -4.000
 ○ .000
 □ 4.000

ALPHA
 .000

MACH 10.000
 OB-ELV 1.250
 1B-ELV .000
 GAP

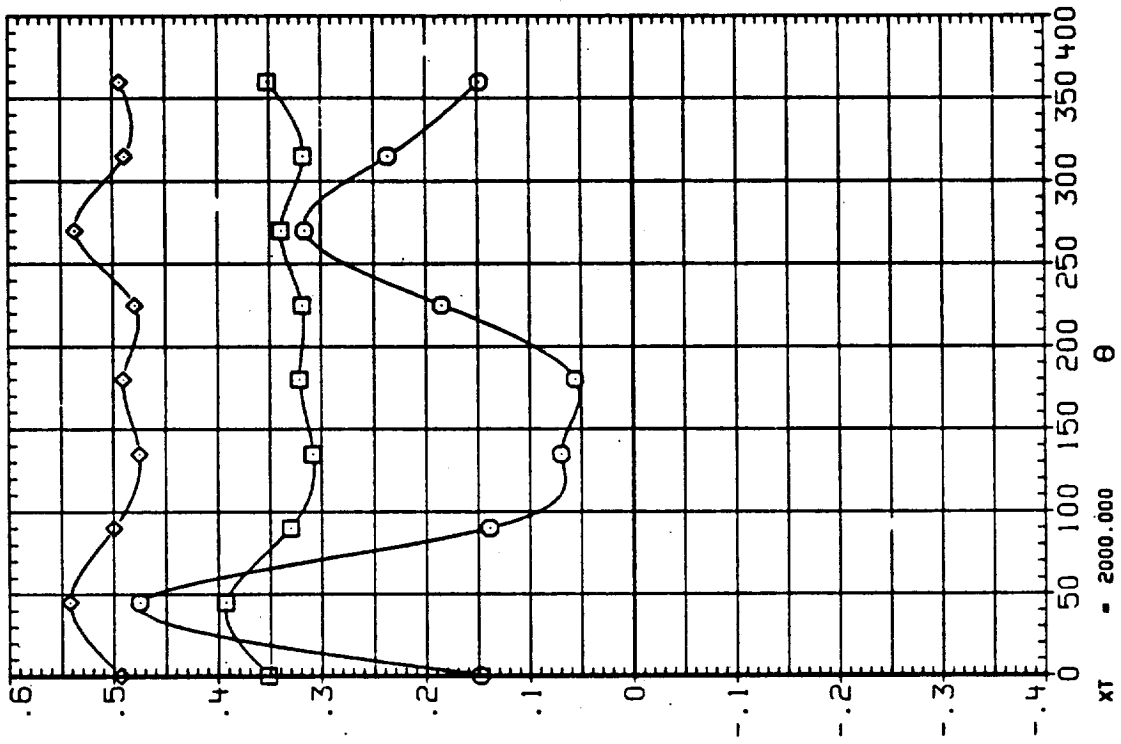
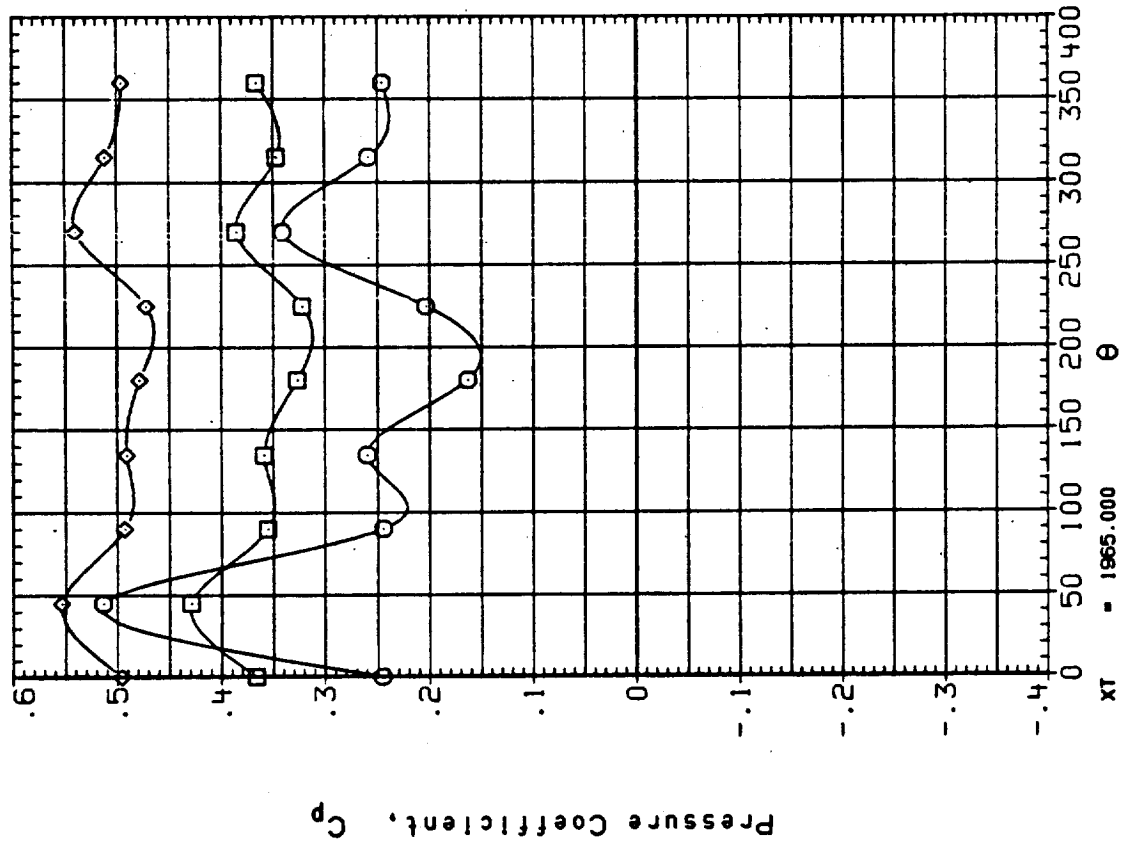


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13VI05) 1A190B, L02 ANTIGEYSER LINE, RAMPS(1) ON

SYMBOL	BETA	ALPHA	MACH	PARAMETRIC VALUES
◇	-4.000	.000	1B-ELV	2.000 Q (PSF)
□	.000			8.000 OB-ELV
○	4.000			600.000
				-5.000

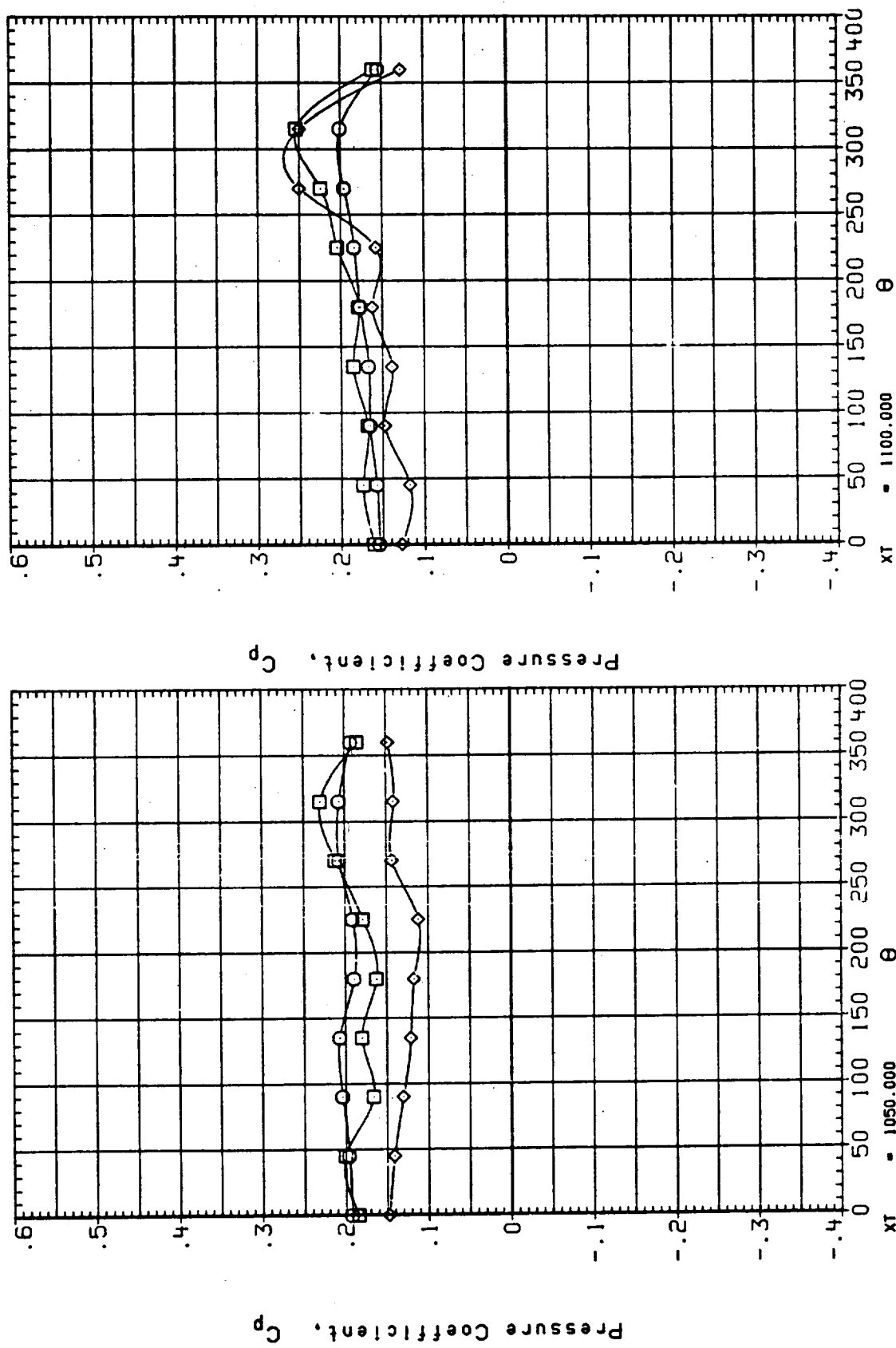


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13VI05) 1A190B, L02 ANTIGEYSER LINE, RAMPS(1) ON

SYMBOL BETA
 ◊ -4.000
 ○ .000
 □ 4.000

ALPHA
 .000

MACH
 18 ELV

PARAMETRIC VALUES
 2.000 Q(PSF) 600.000
 8.000 08-ELV -5.000

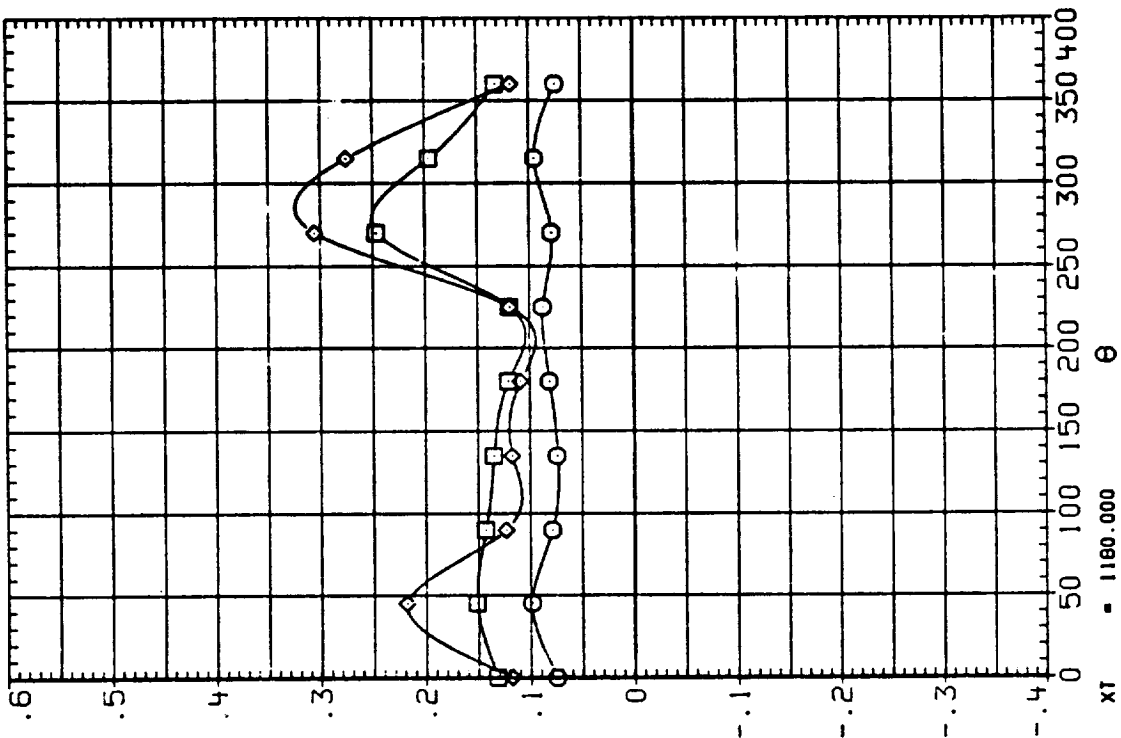
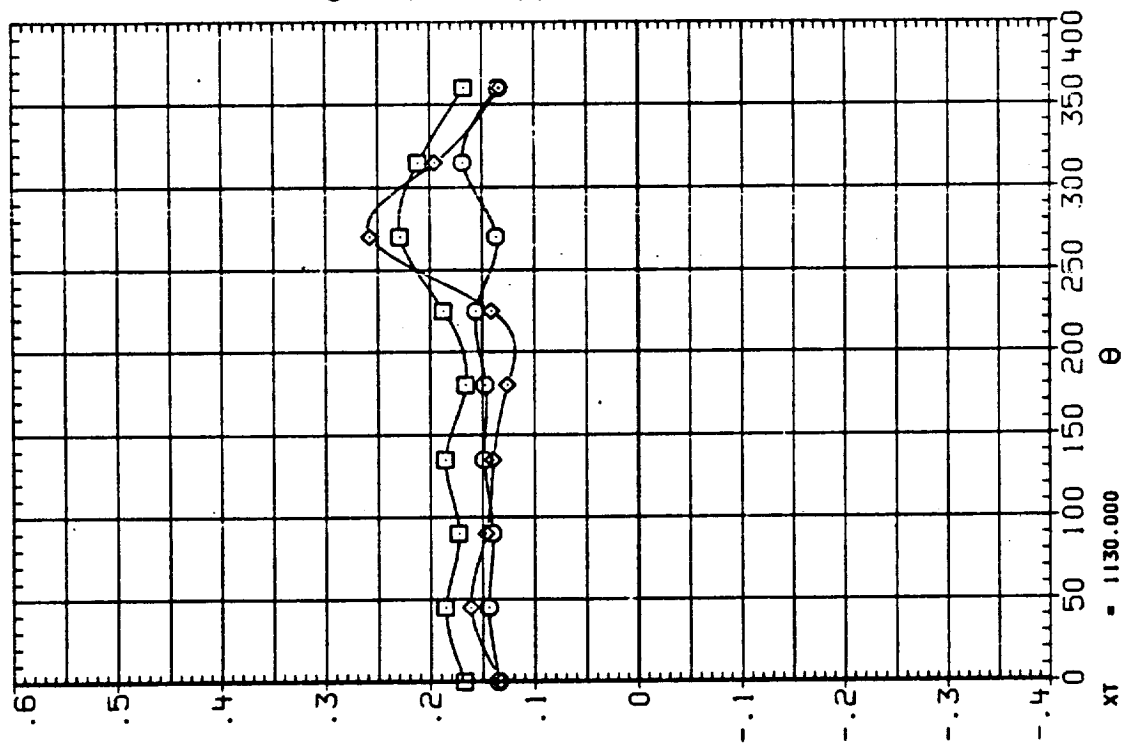


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13V105) 1A190B, L02 ANTIGEYSEY LINE, RAMPS(1) ON

SYMBOL
 BETA
 -4.000
 .000
 4.000

ALPHA
 .000

MACH
 18-ELV

PARAMETRIC VALUES
 2.000 Q(PSF)
 8.000 08-ELV
 600.000
 -5.000

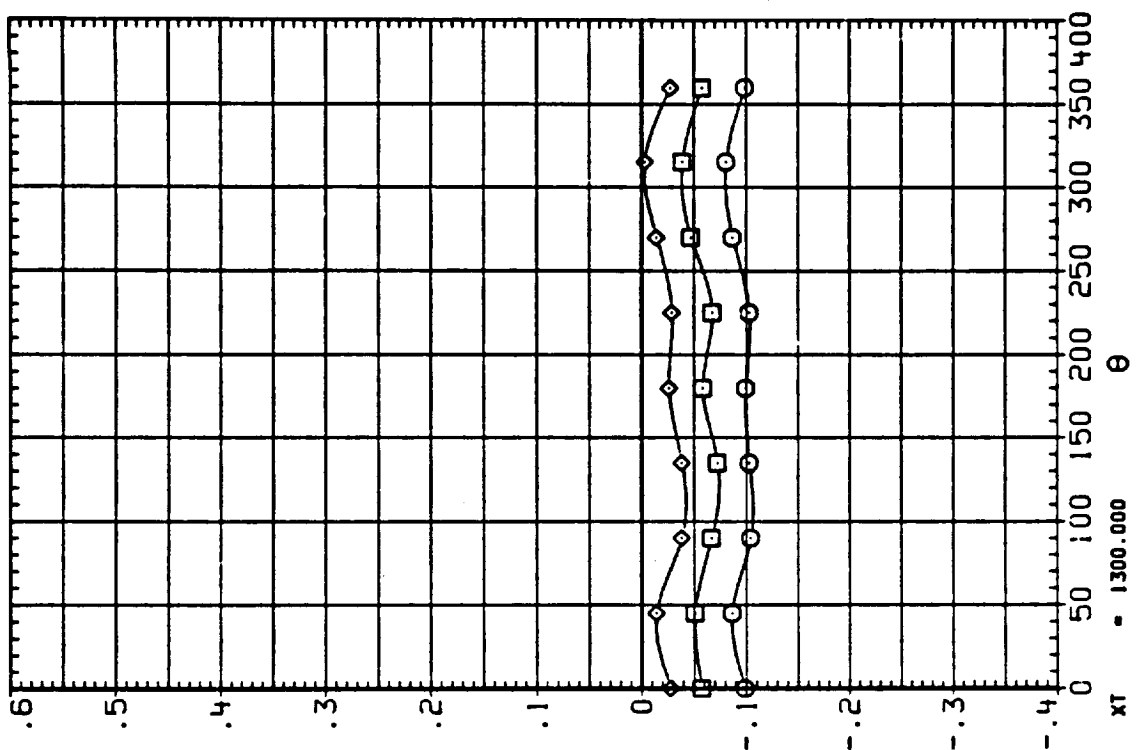
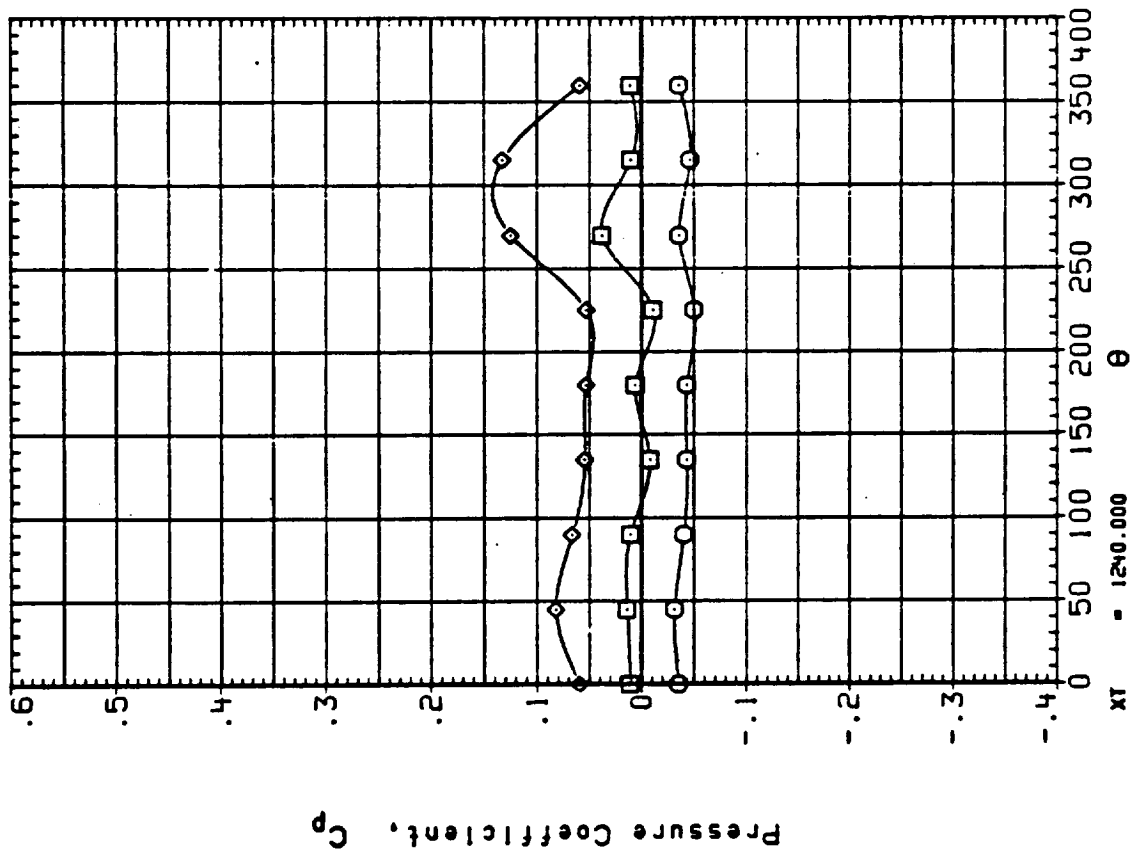


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSEY LINE

(13VI105) 1A190B, L02 ANTIGEYSER LINE, RAMPS(1) ON

SYMBOL BETA
 ○ -4.000
 □ .000
 ◇ 4.000

ALPHA
 .000

MACH 10-ELV
 2.000 8.000 600.000
 Q(PSF) 08-ELV -5.000

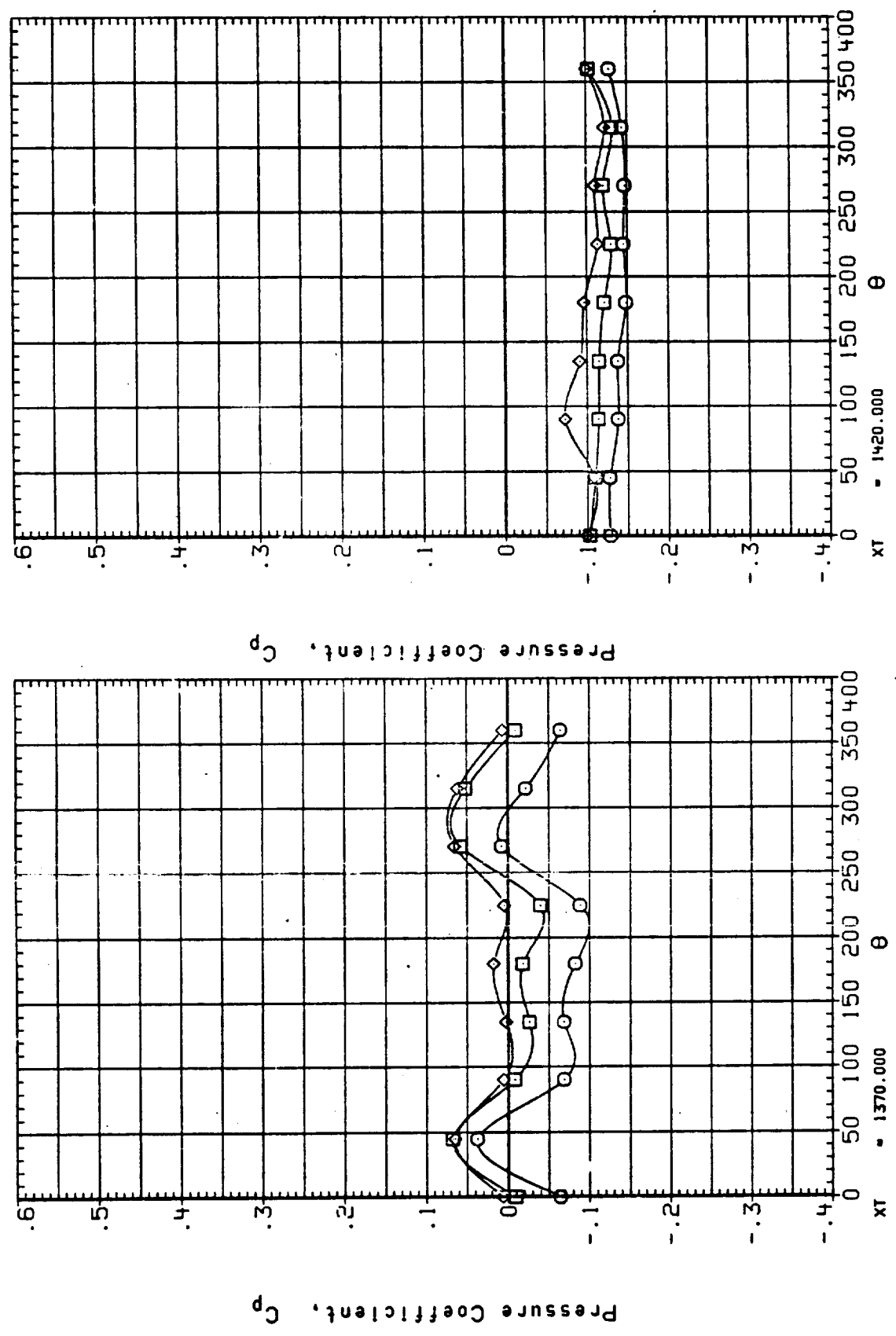


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13VI05) 1A190B, L02 ANTIGEYSER LINE, RAMPS(1) ON

SYMBOL
 ◇
 □
 ○

BETA
 -4.000
 .000
 4.000

ALPHA
 .000

MACH
 18-ELV

PARAMETRIC VALUES
 2.000 8.000 600.000
 0(PSF) 08-ELV -5.000

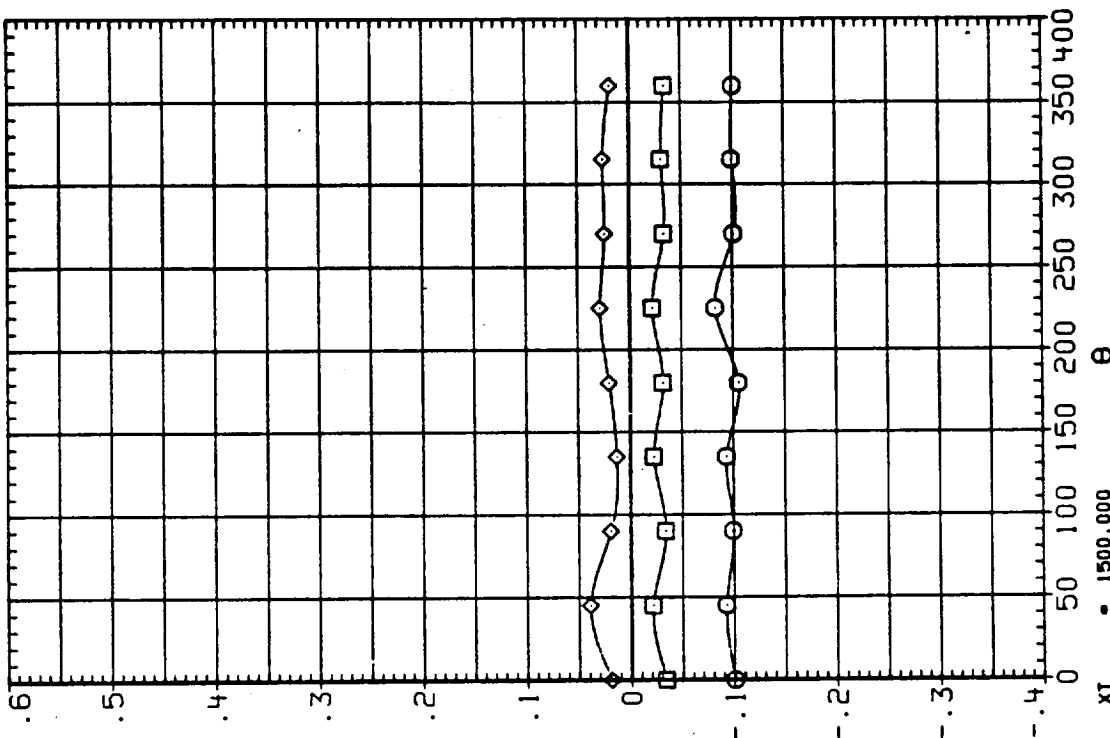
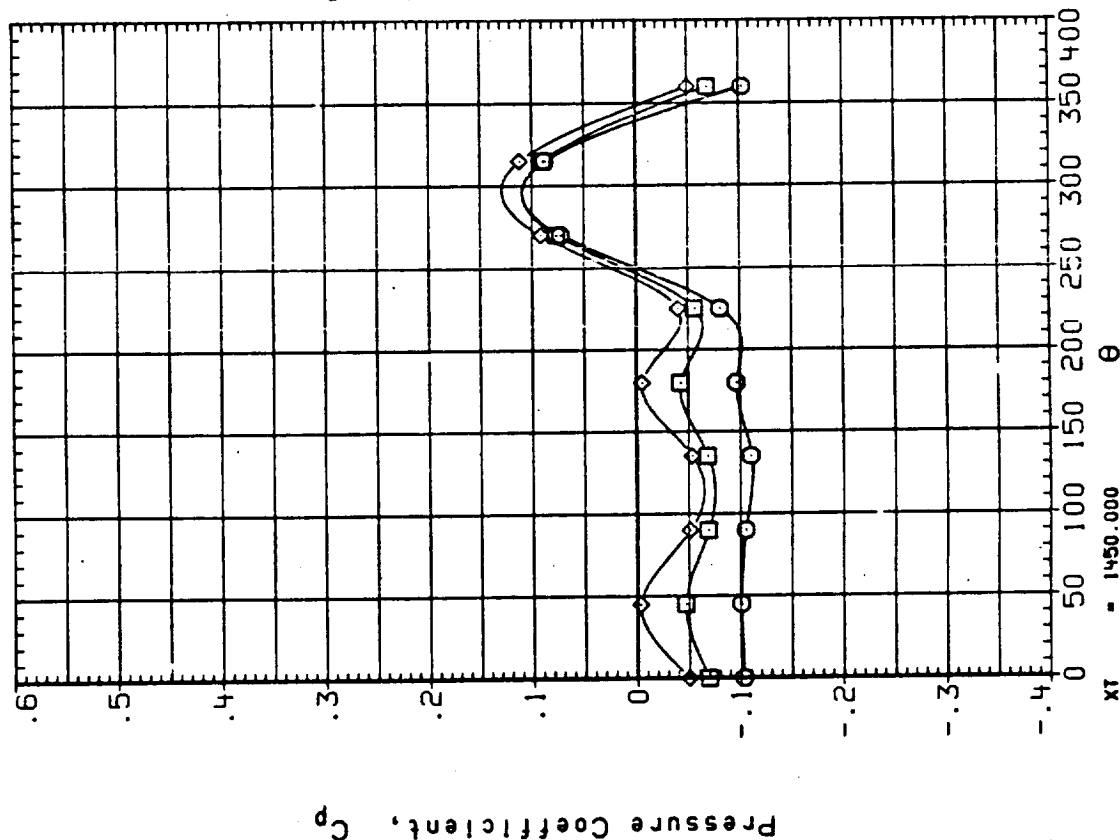


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13V105) IA190B, LO2 ANTIGEYSER LINE, RAMPS(1) ON

SYMBOL BETA ALPHA
 □ -4.000 .000
 ◇ -4.000 4.000

PARAMETRIC VALUES
 MACH 2.000 Q(PSF) 600.000
 IB-ELV 8.000 OB-ELV -5.000

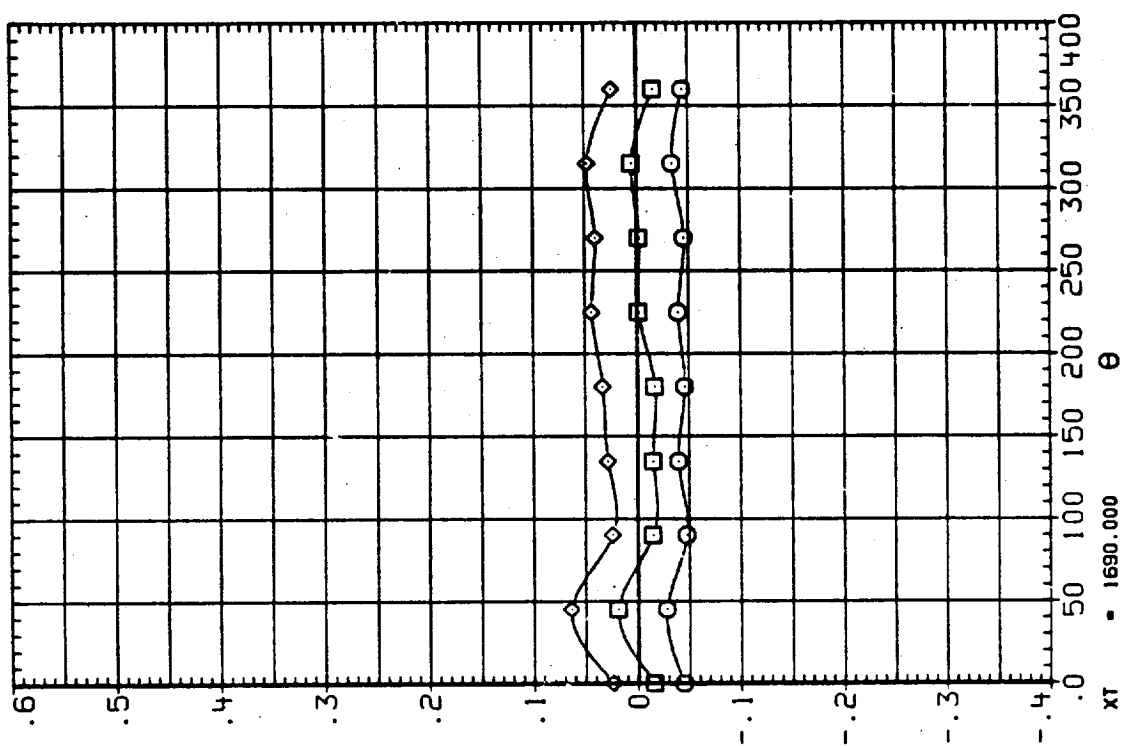
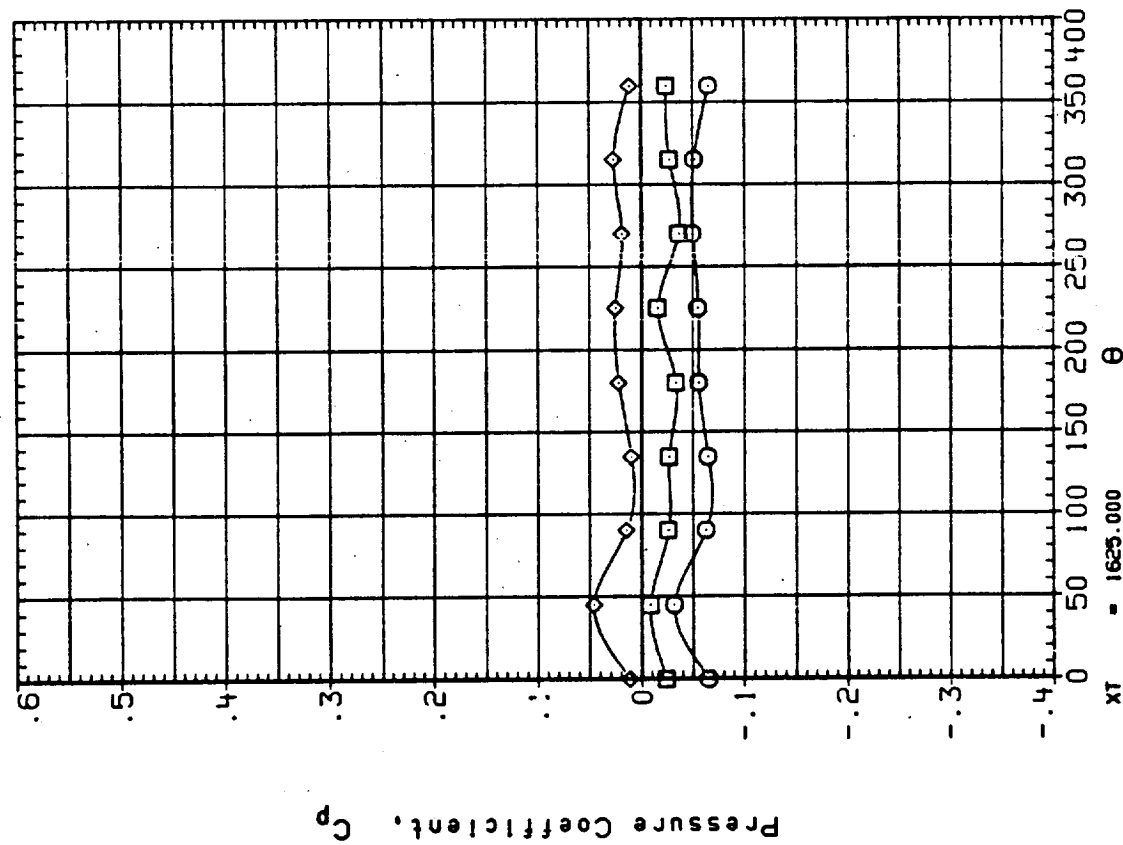


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE LO2 ANTIGEYSER LINE

(13VI05) 1A190B, L02 ANTIGEYSER LINE, RAMPS(1) ON

SYMBOL \diamond \square
 BETA -4.000
 .000
 4.000

ALPHA .000

MACH 18-ELV
 2.000 8.000 600.000
 Q(PSF) 08-ELV -5.000

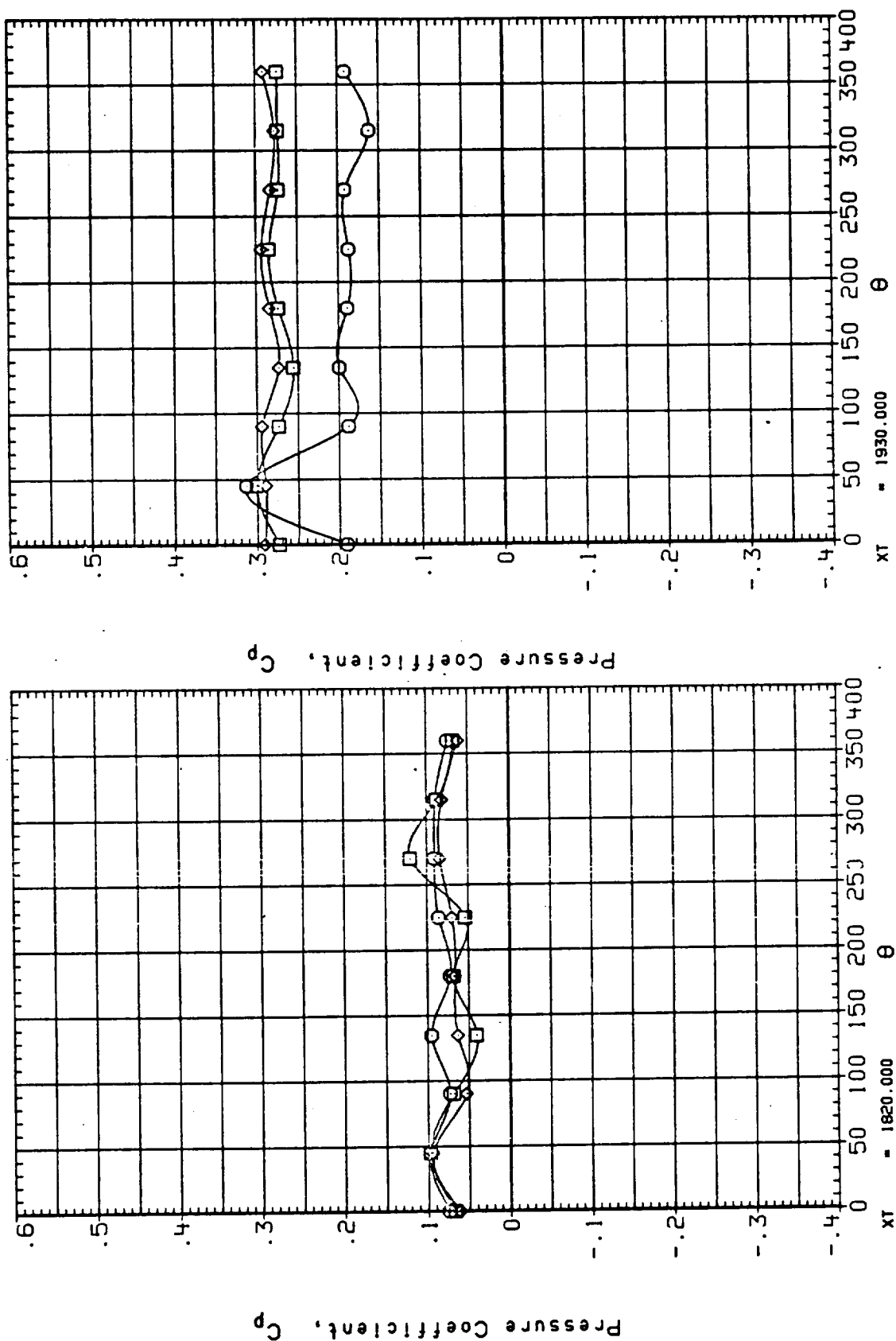


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSER LINE

(13VI05) IA190B, L02 ANTIGEYSEY LINE, RAMPS(1) ON

SYMBOL BETA
 O -4.000
 O .000
 O 4.000

ALPHA
 .000

MACH
 18-ELV

PARAMETRIC VALUES
 2.000 Q(PSF)
 8.000 OB-ELV
 600.000
 -5.000

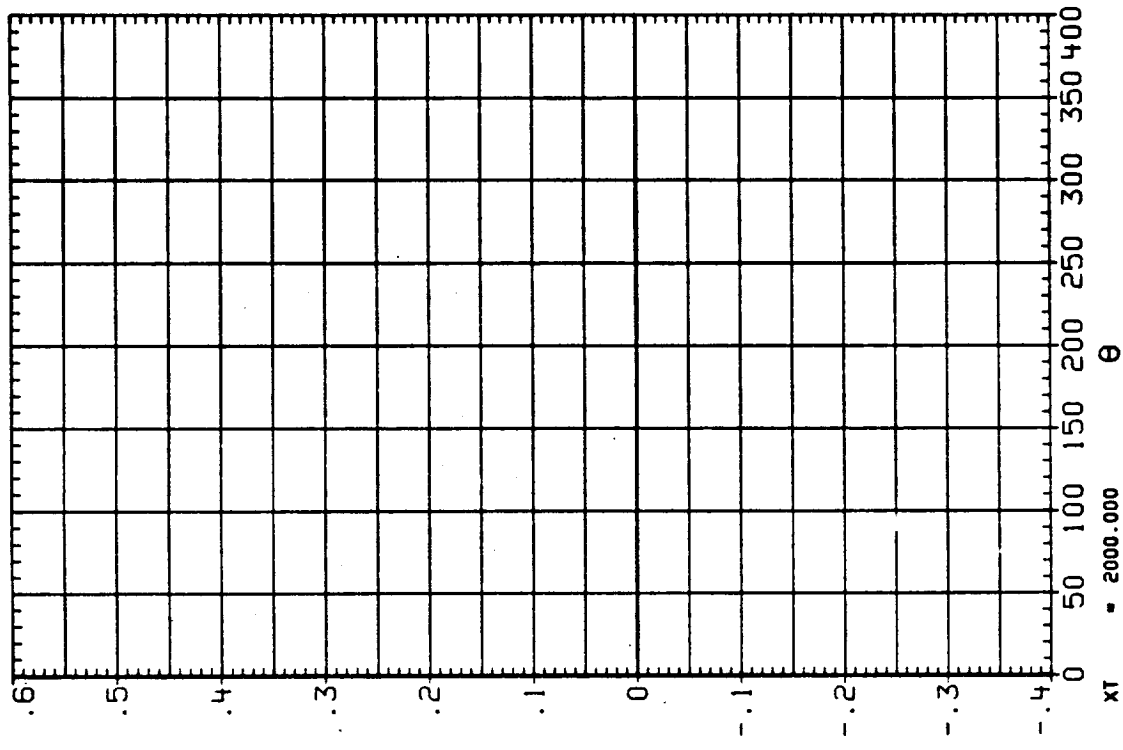
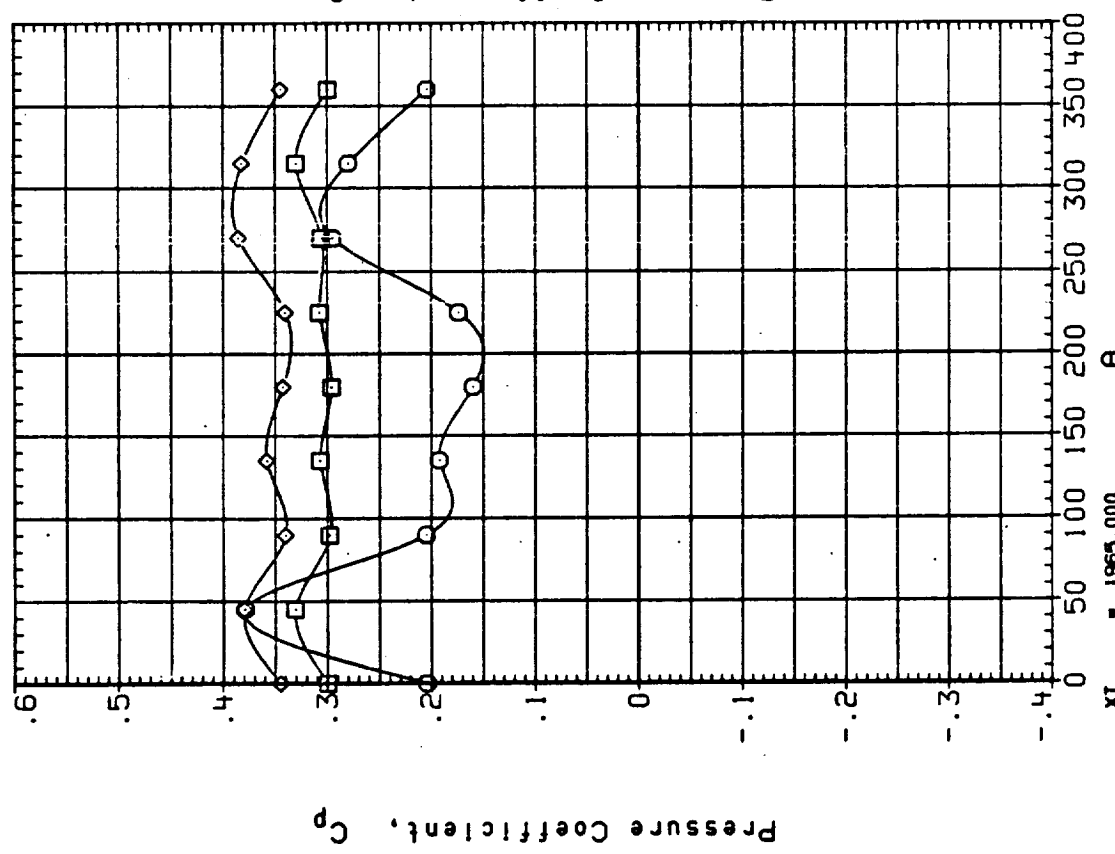


FIGURE 23. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE L02 ANTIGEYSEY LINE

(13UF17) 1A190A, GH2 PRESSURE LINE, (W/RAKE) RAMPS ON

BETA
 SYMBOL \square \diamond
 -4.000
 .000
 4.000
 ALPHA
 .000
 MACH
 OB-ELV
 PARAMETRIC VALUES
 .600 9.000 10.000
 IB-ELV GAP

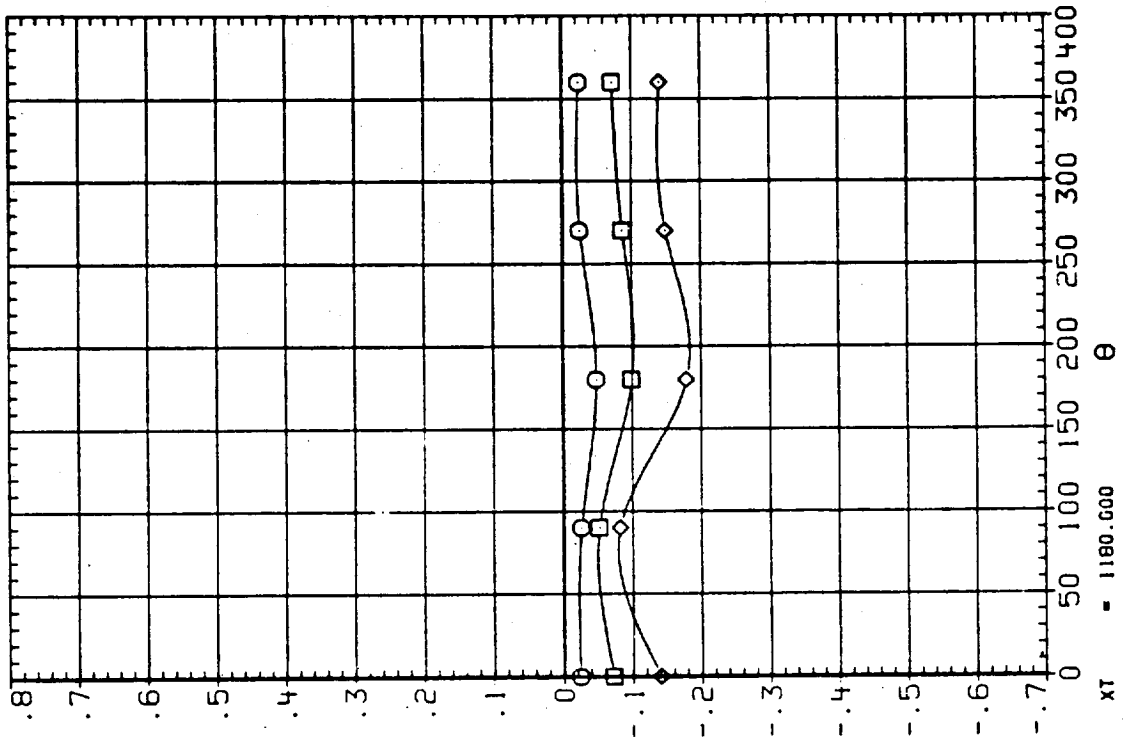
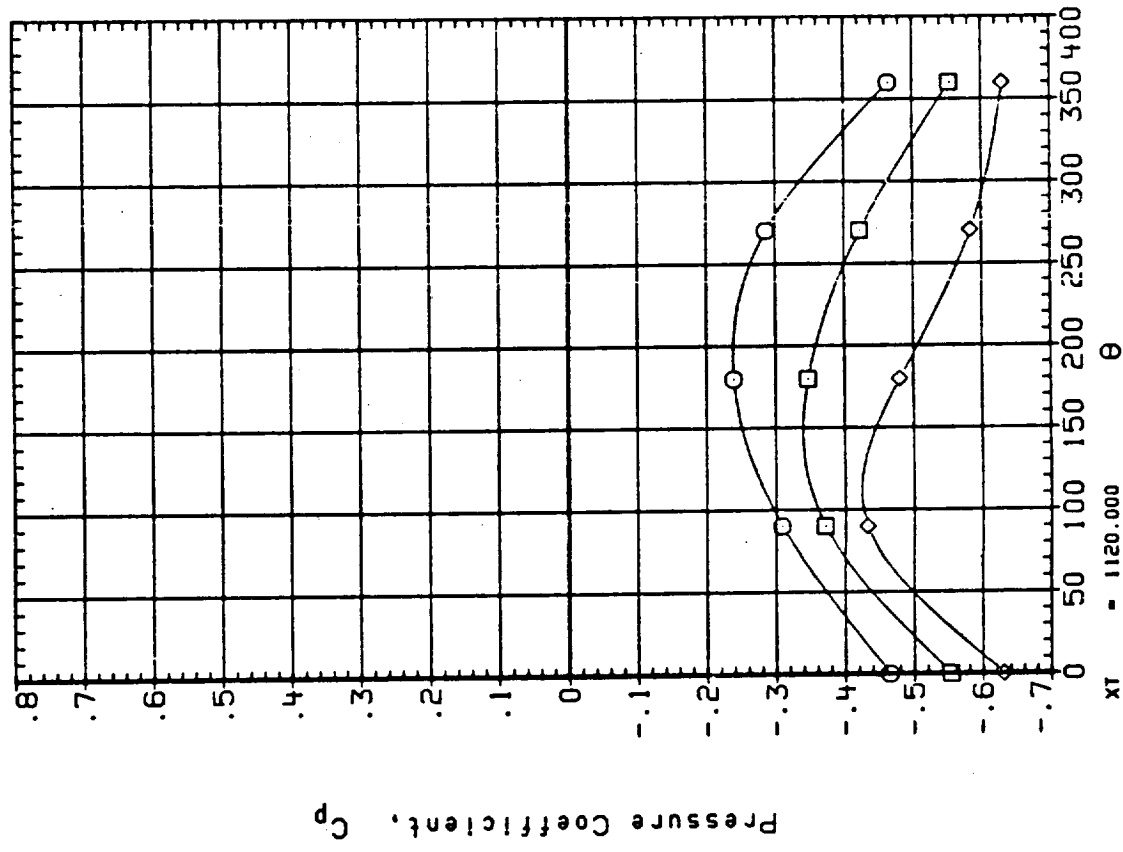


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(13UF17) 1A190A, GH2 PRESSURE LINE, (W/RAKE) RAMPS ON

PARAMETRIC VALUES
 MACH 9.000 18-ELV 10.000
 OB-ELV GAP .000

ALPHA .000

BETA
 SYMBOL -4.000
 .000 4.000

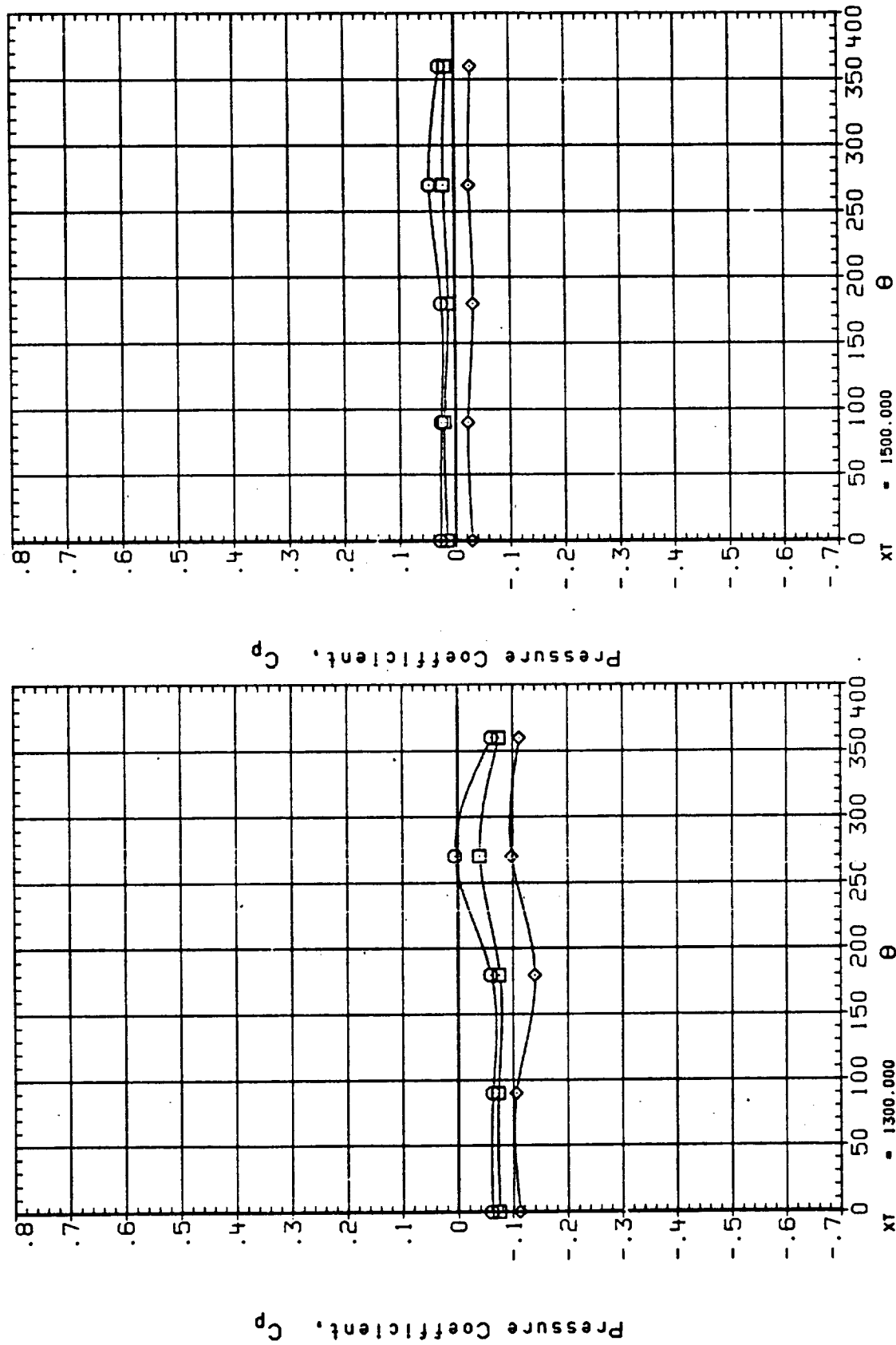


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(13UF17) IA190A, GH2 PRESSURE LINE, (W/RAKE) RAMPS ON

SYMBOL
 ◇
 ○
 □

BETA
 -4.000
 .000
 4.000

ALPHA
 .000

MACH
 08-ELV

PARAMETRIC VALUES
 .600 10.000
 9.000 .000

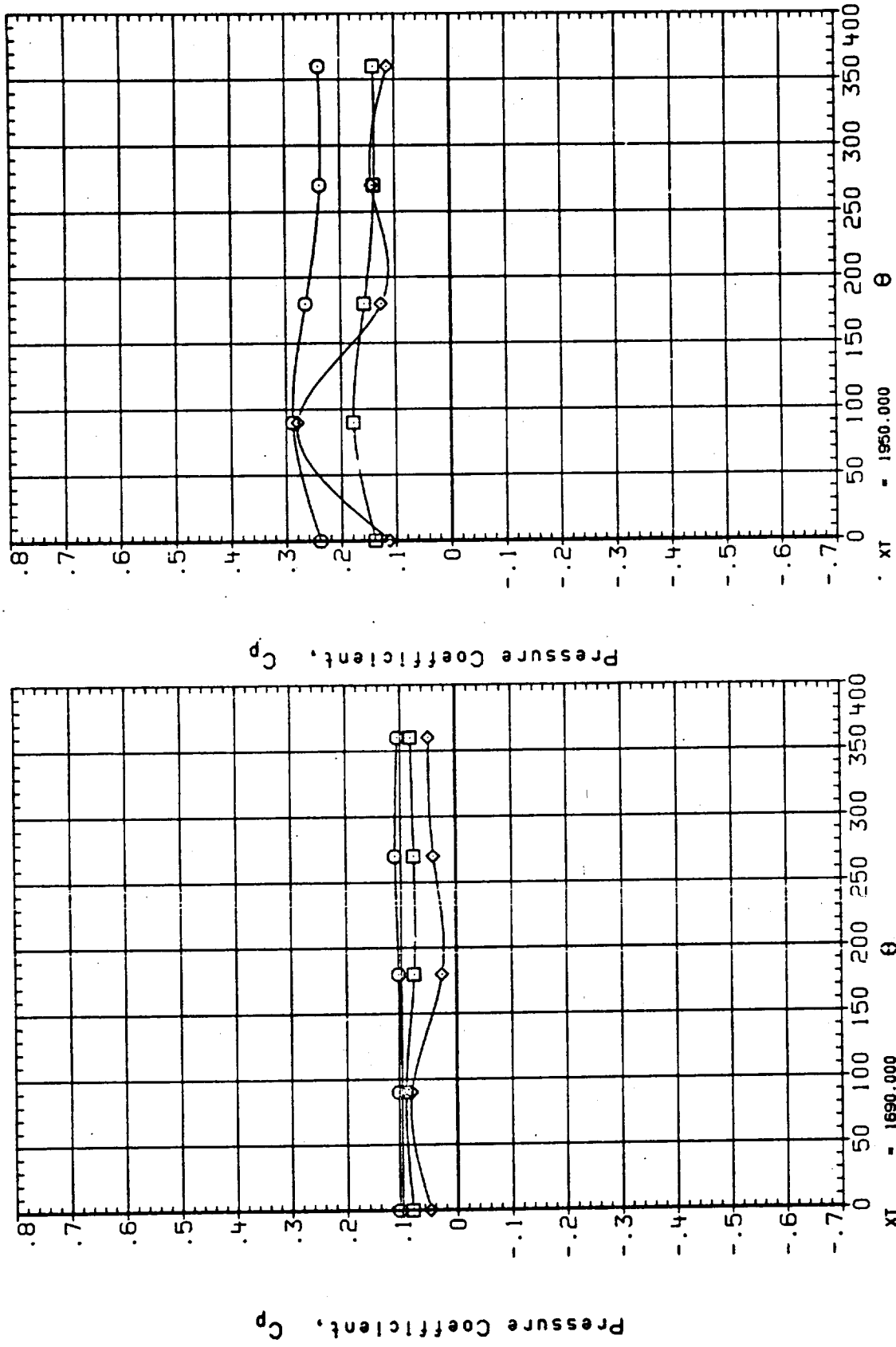


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(13UF17) 1A190A, GH2 PRESSURE LINE, (W/RAKE) RAMPS ON

SYMBOL		BETA		ALPHA		MACH		PARAMETRIC VALUES	
◇	○	4.000	4.000	0.000	0.000	OB-ELV	9.000	10.000	10.000
□	○	4.000	4.000	0.000	0.000	OB-ELV	9.000	10.000	10.000

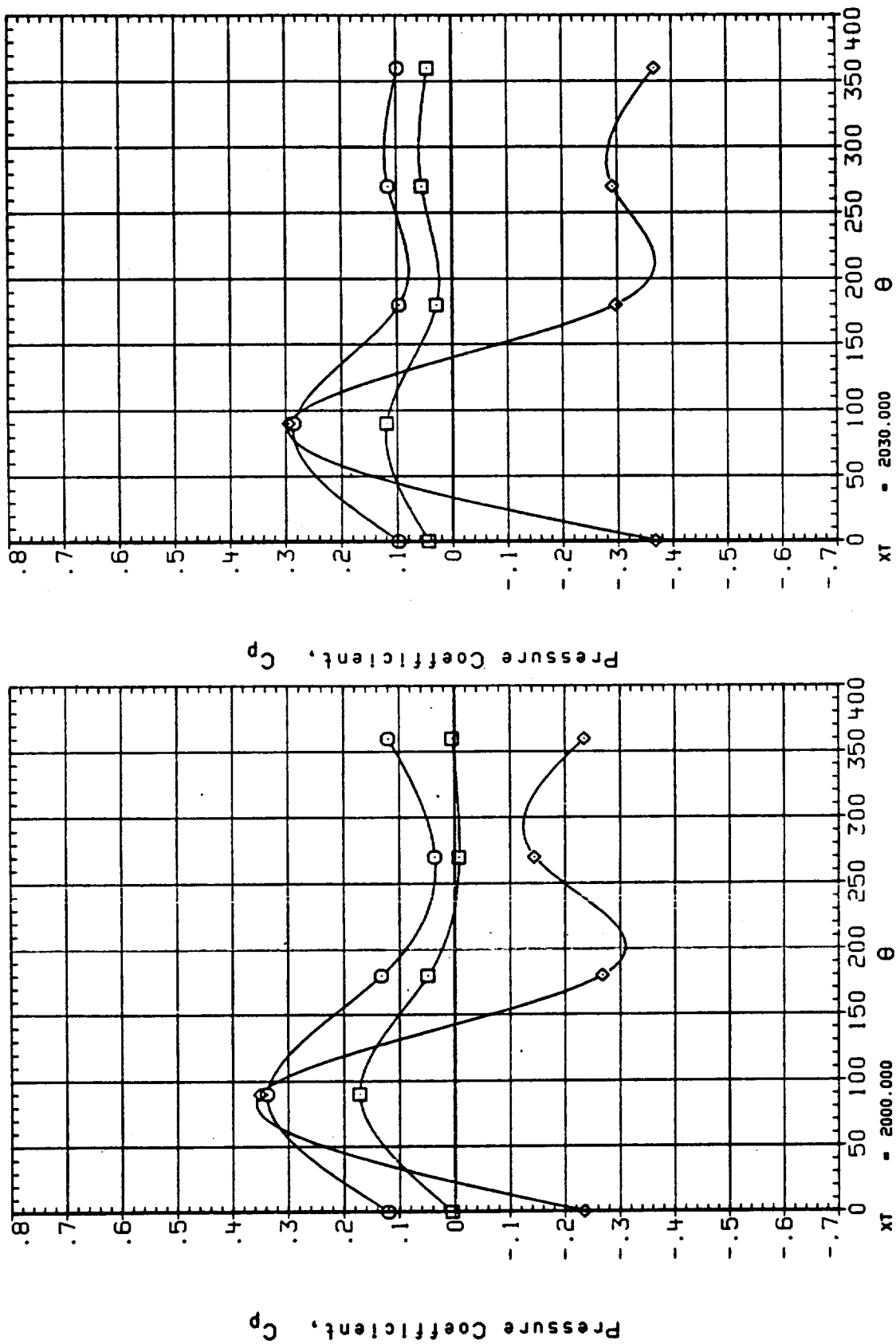


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(13UF20) 1A190A, GH2 PRESSURE LINE, (W/RAKE) RAMPS ON

SYMBOL BETA
 □ -4.000
 ◇ 4.000

ALPHA
 .000

MACH
 08-ELV

PARAMETRIC VALUES
 1.250 18-ELV 10.000
 .000 GAP .000

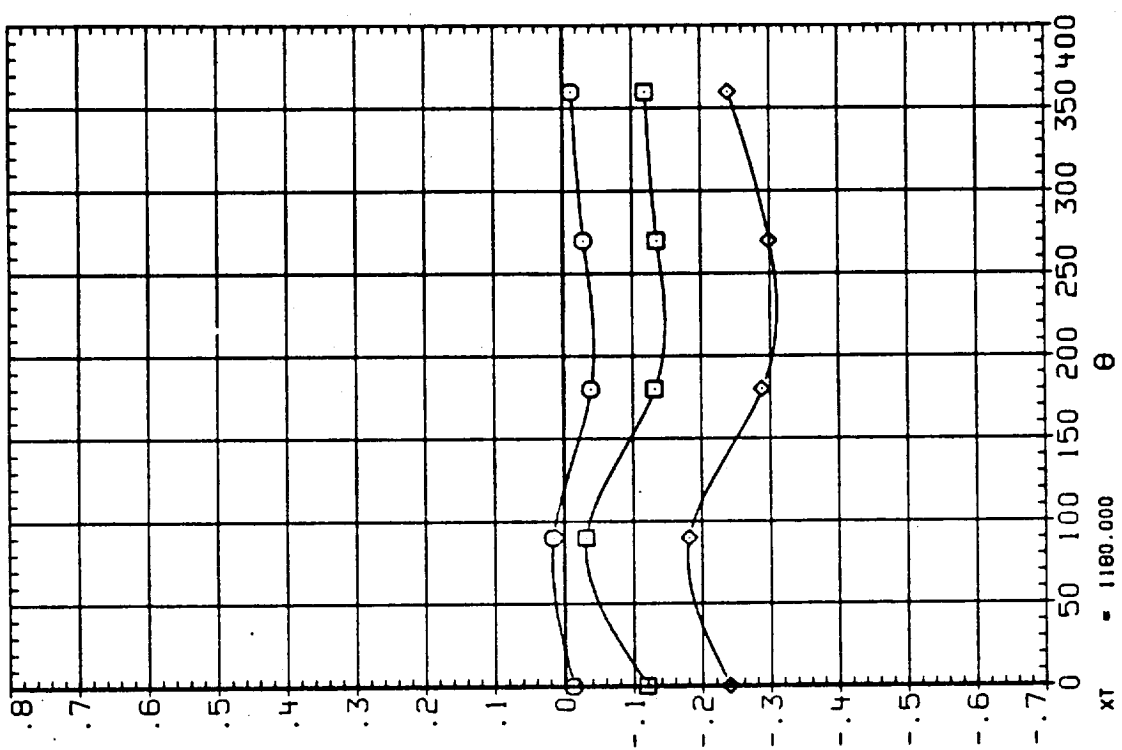
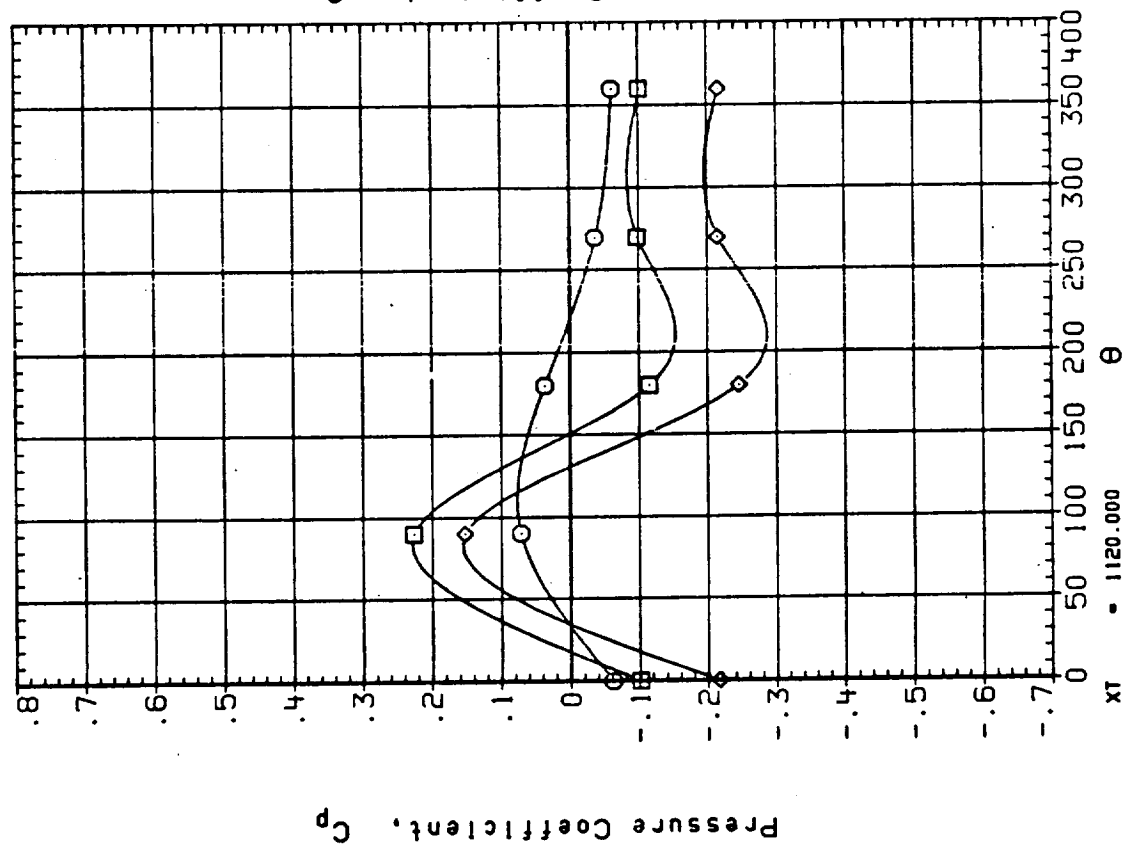


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(13UF20) 1A190A, GH2 PRESSURE LINE, (W/RAKE) RAMPS ON

SYMBOL BETA
 □ -4.000
 ◇ .000
 4.000

ALPHA
 .000

MACH
 08-ELV

PARAMETRIC VALUES
 1.250 18-ELV
 .000 GAP

10.000
 .000

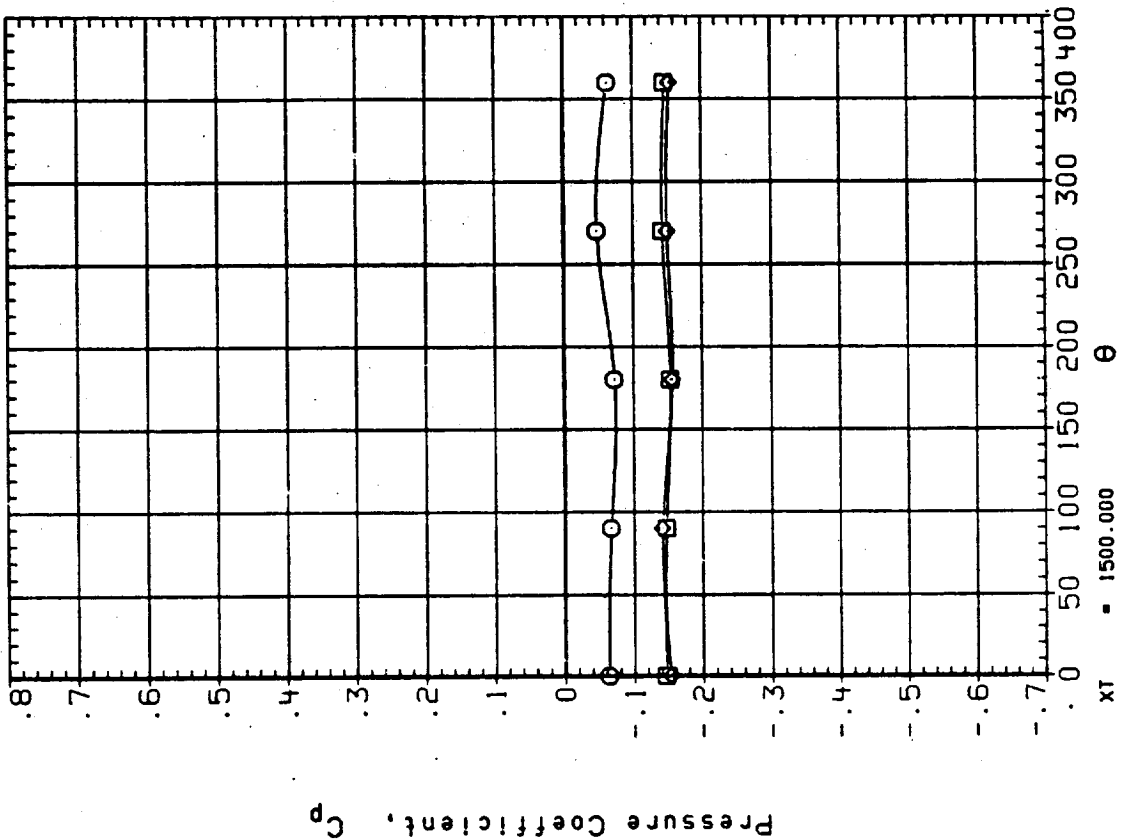
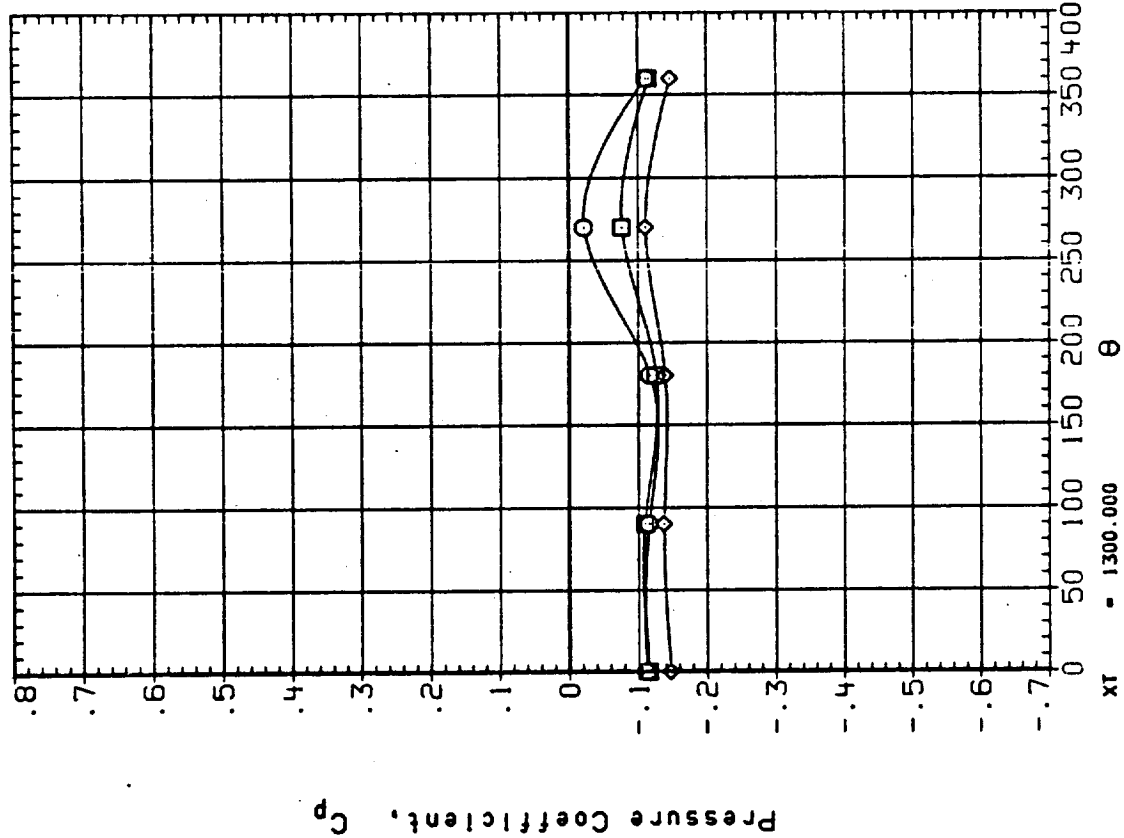


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(13UF20) 1A190A, GH2 PRESSURE LINE, (W/RAKE) RAMPS ON

SYMBOL
 \square
 \diamond

BETA
 -4.000
 .000
 4.000

ALPHA
 .000

MACH
 OB-ELV

PARAMETRIC VALUES
 1.250
 .000
 10.000
 10.000

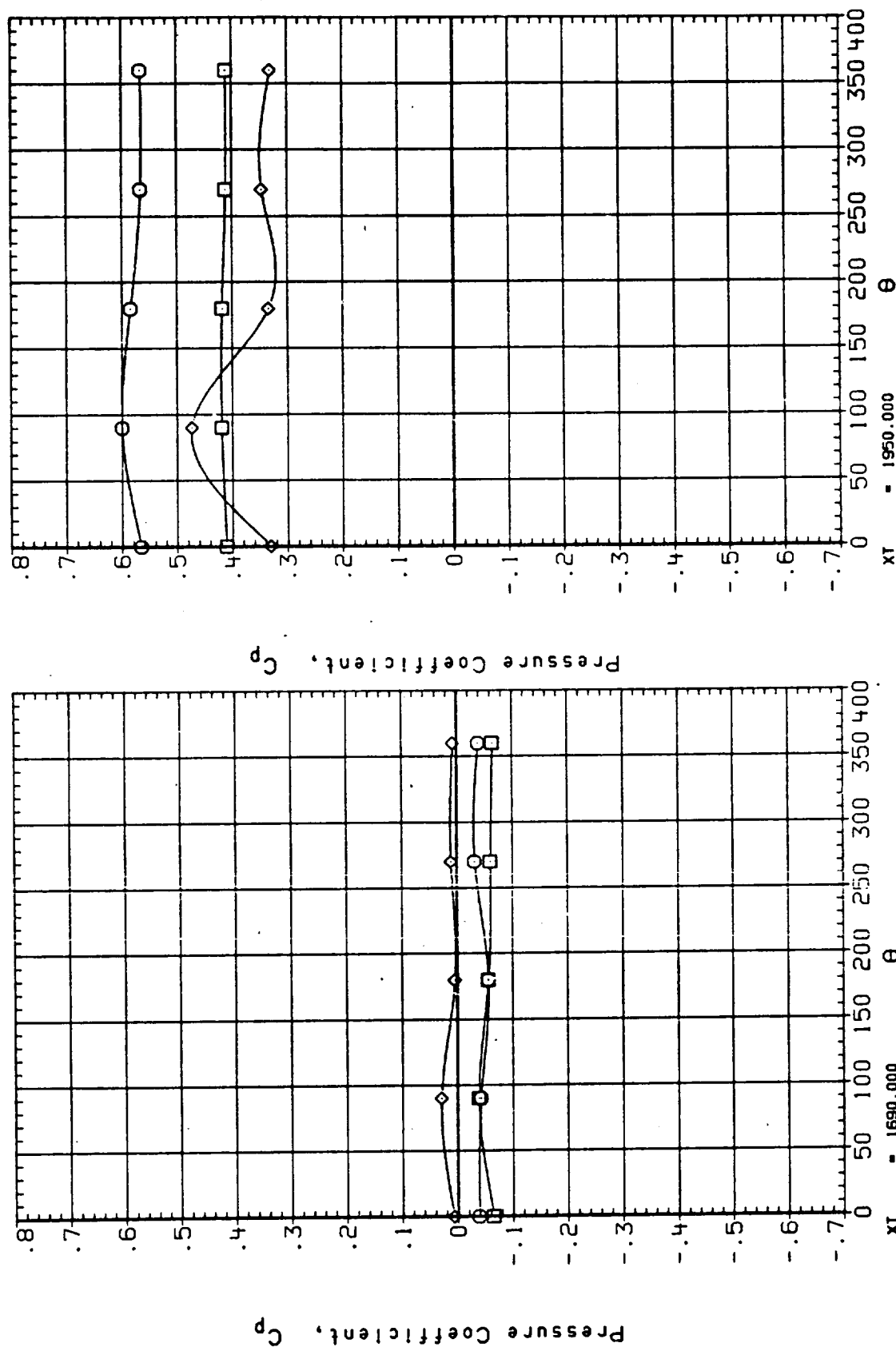


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(13UF20) 1A190A, GH2 PRESSURE LINE, (W/RAKE) RAMPS ON

PARAMETRIC VALUES
MACH 1.250 18-ELV 10.000
OB-ELV .000

ALPHA .000

BETA
SYMBOL -4.000
.000
4.000

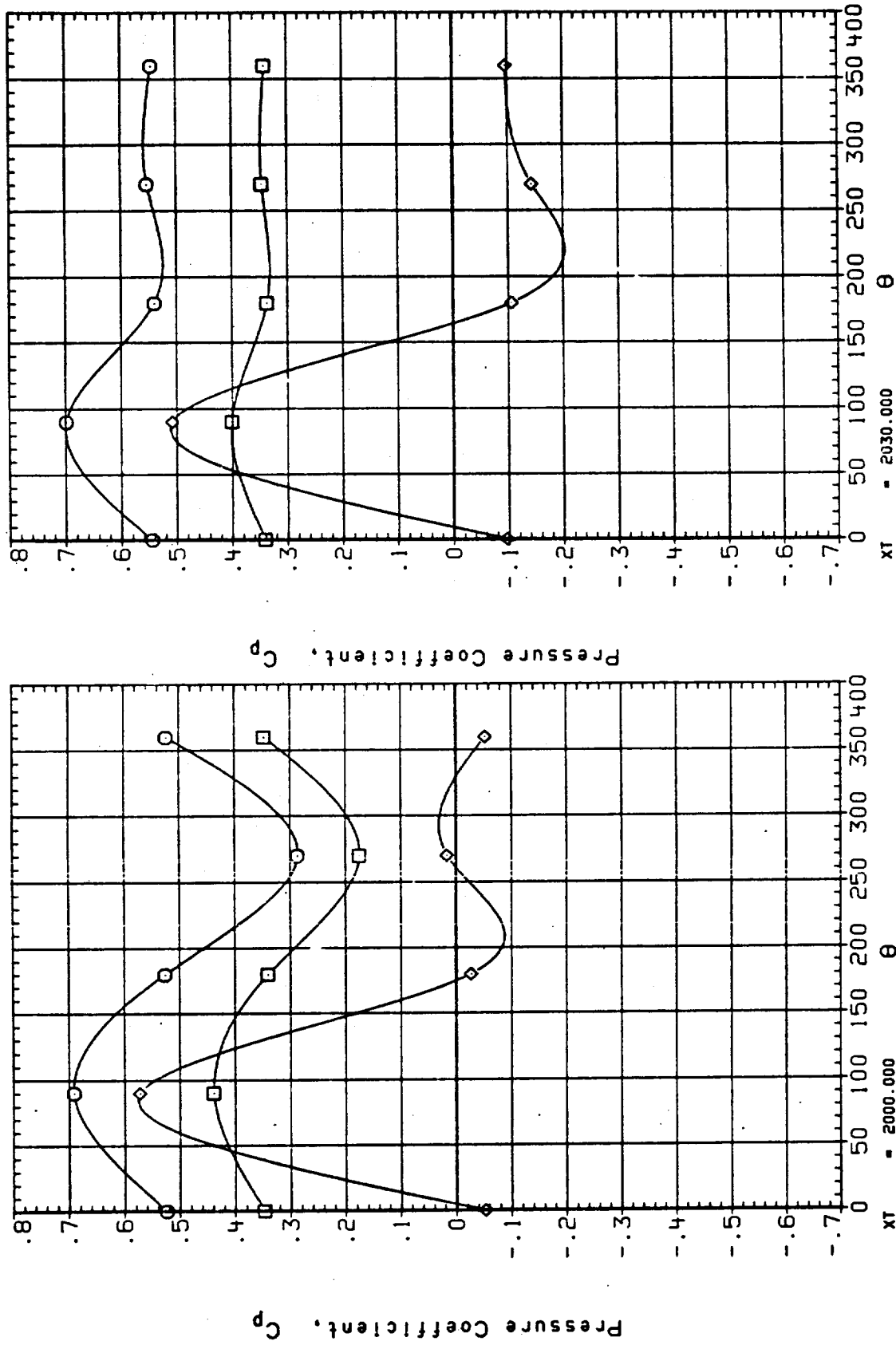


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(J3VF22) 1A190B, GH2 PRESSURE LINE, RAMPS(2) ON

SYMBOL BETA
 ◊ -4.000
 ◻ .000
 ○ 4.000

ALPHA
 .000

MACH 1B-ELV
 2.000 8.000 600.000
 0(PSF) 0B-ELV -5.000

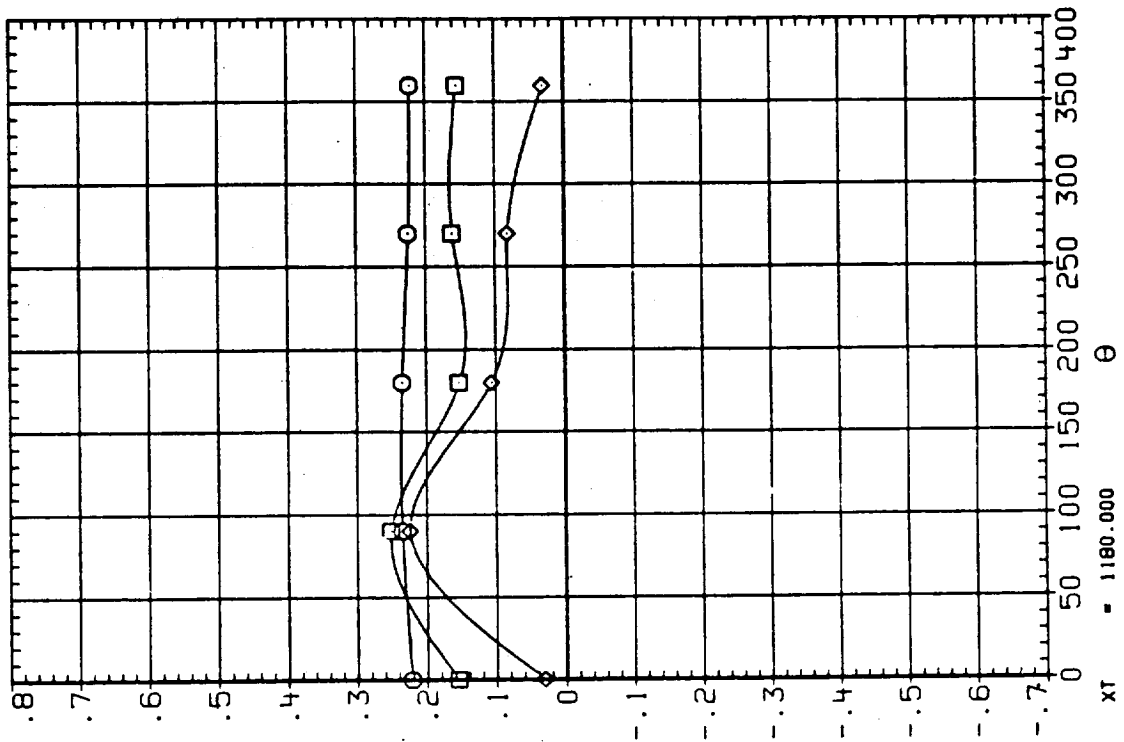
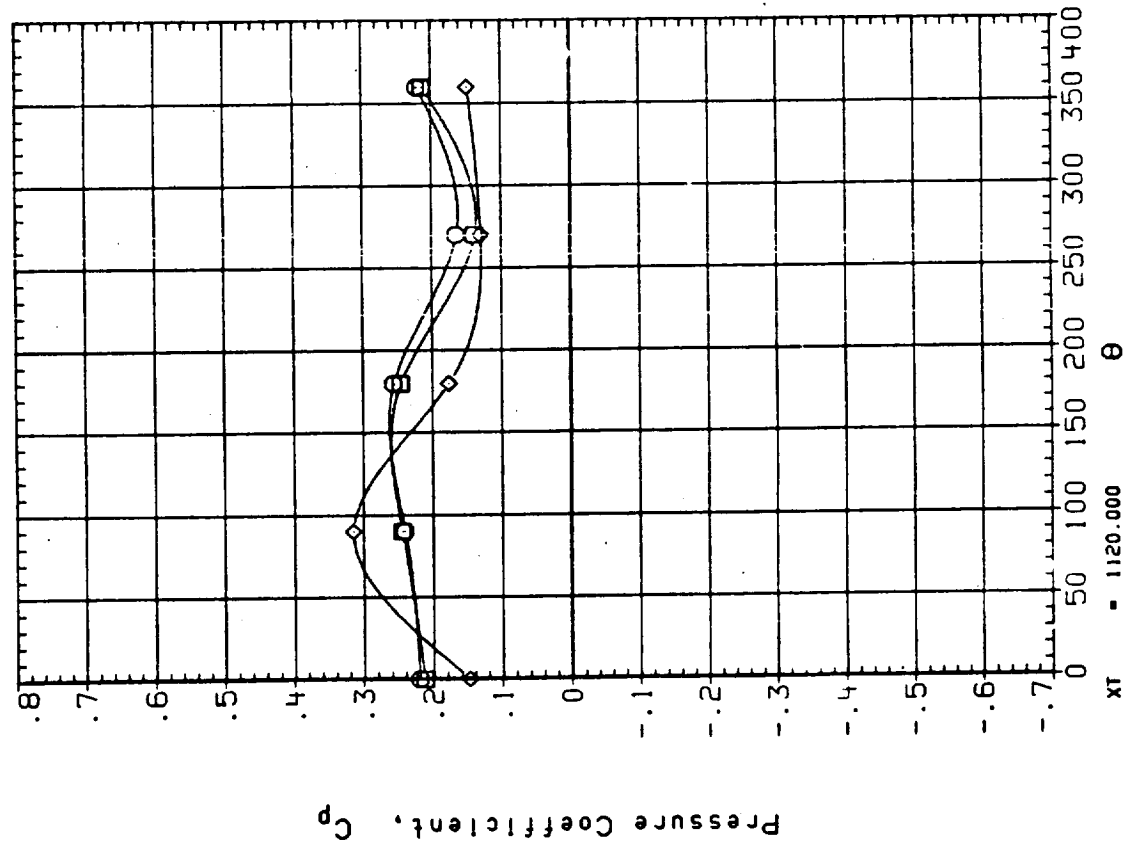


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(J3VF22) 1A190B, GH2 PRESSURE LINE, RAMPS(2) ON

SYMBOL	BETA	ALPHA
□	-4.000	.000
◇	4.000	

PARAMETRIC VALUES

MACH	Q (PSF)	600.000
18 FLY	8.000	-5.000
	08-ELY	

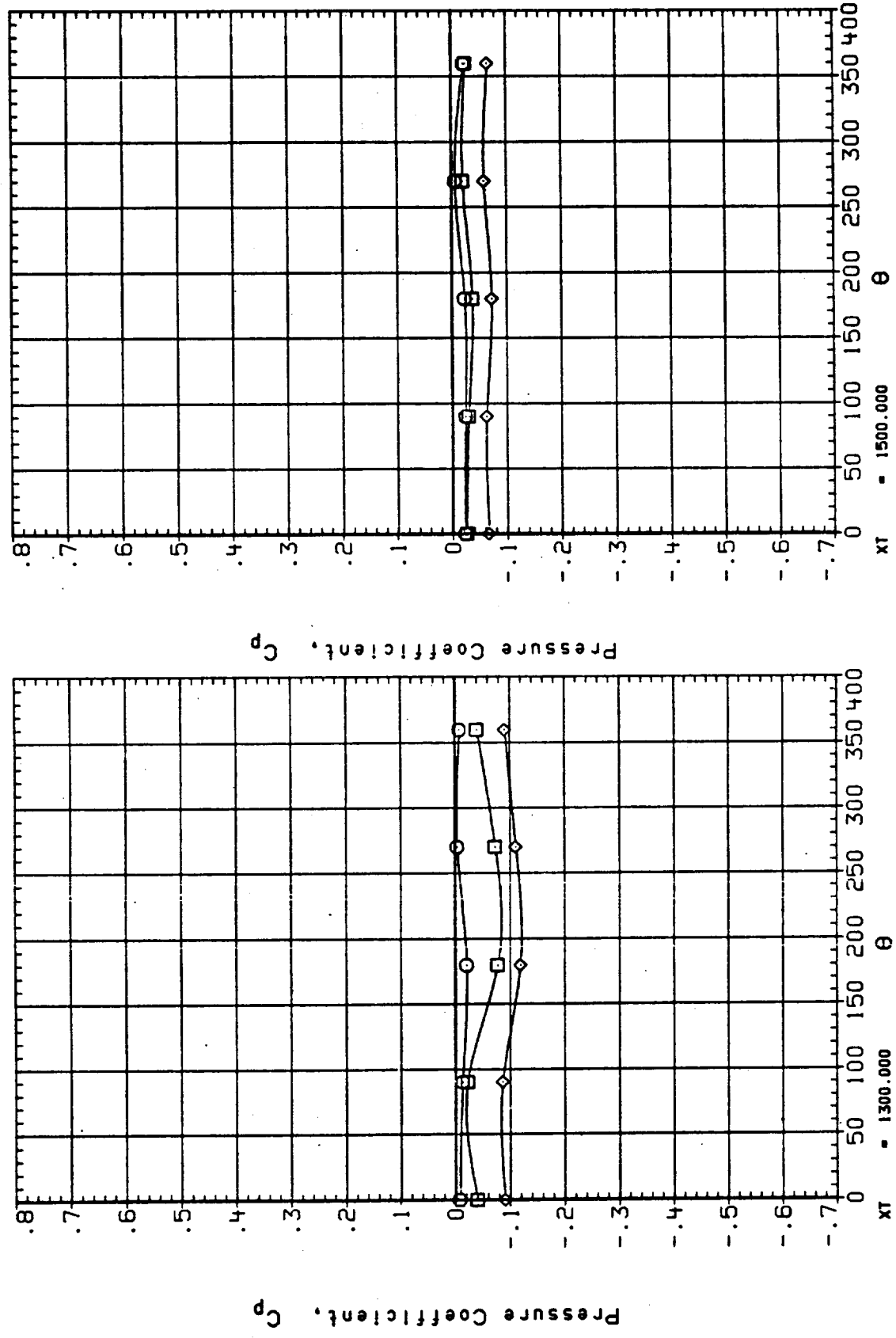


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(J3VF22) IA190B, GH2 PRESSURE LINE, RAMPS(2) ON

SYMBOL BETA ALPHA

□ -4.000 .000

◇ 4.000 .000

MACH 18-ELV

PARAMETRIC VALUES

2.000 0.0(PSE)

8.000 08-ELV

600.000

-5.000

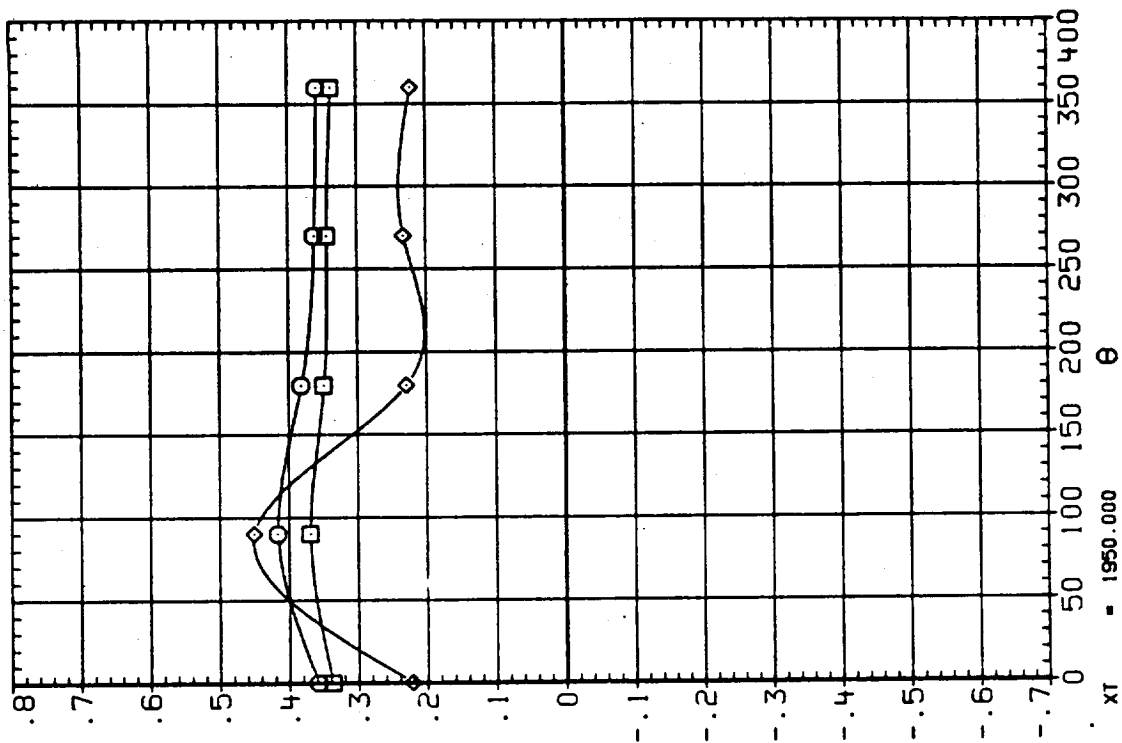
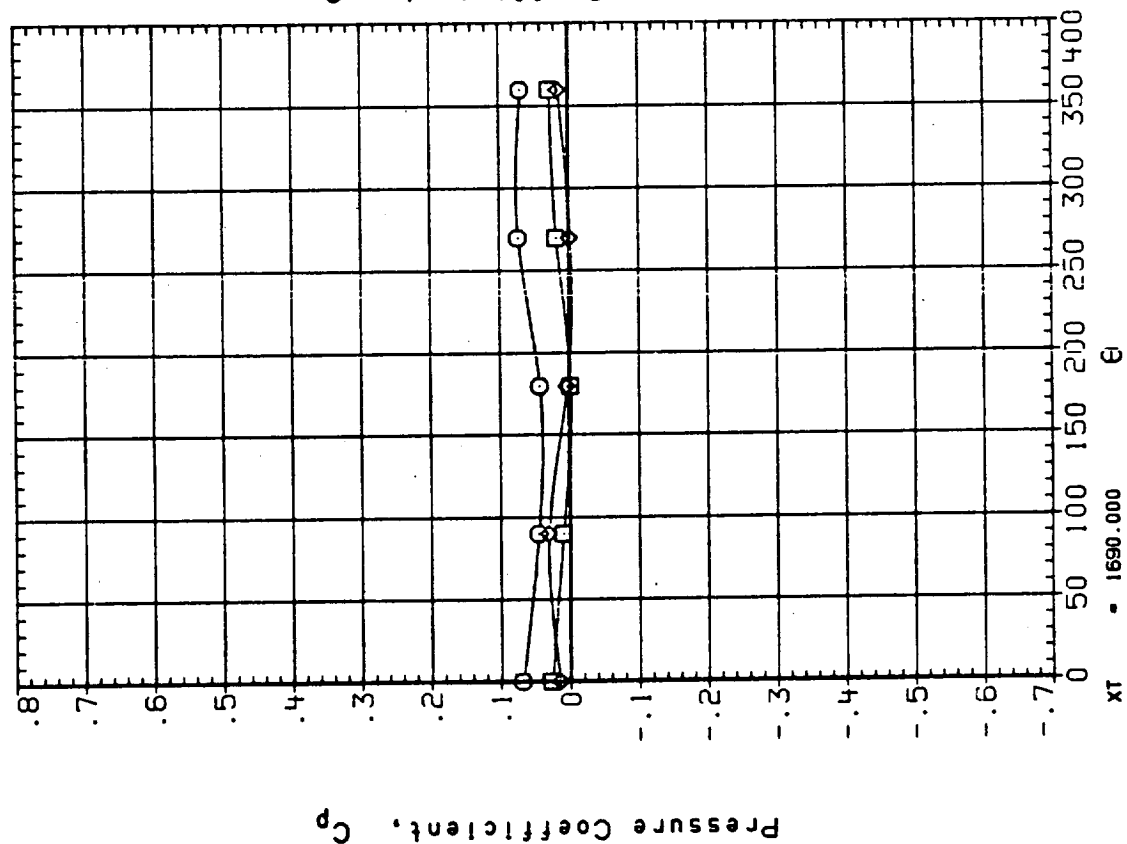


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(J3VF22) 1A190B, GH2 PRESSURE LINE, RAMPS(2) ON

SYMBOL

BETA

ALPHA

\square -4.000
 \diamond .000
 \square 4.000

MACH
 18-ELV

PARAMETRIC VALUES

2.000 600.000
 8.000 0(PSF)
 08-ELV -5.000

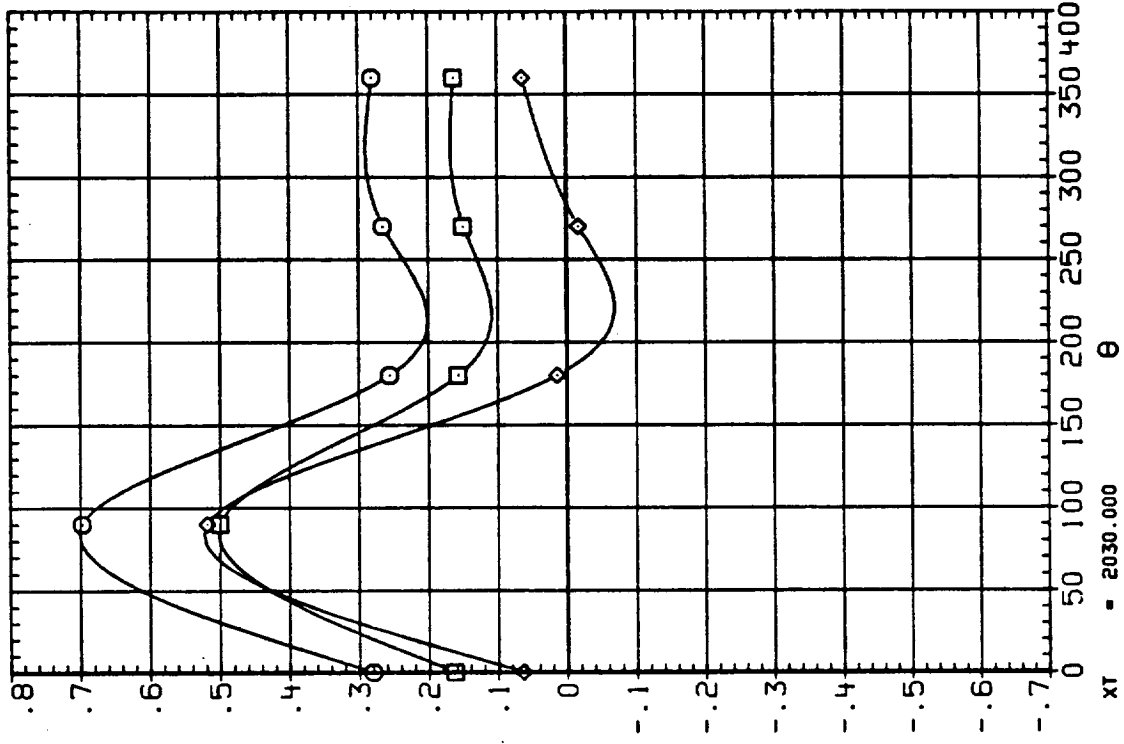
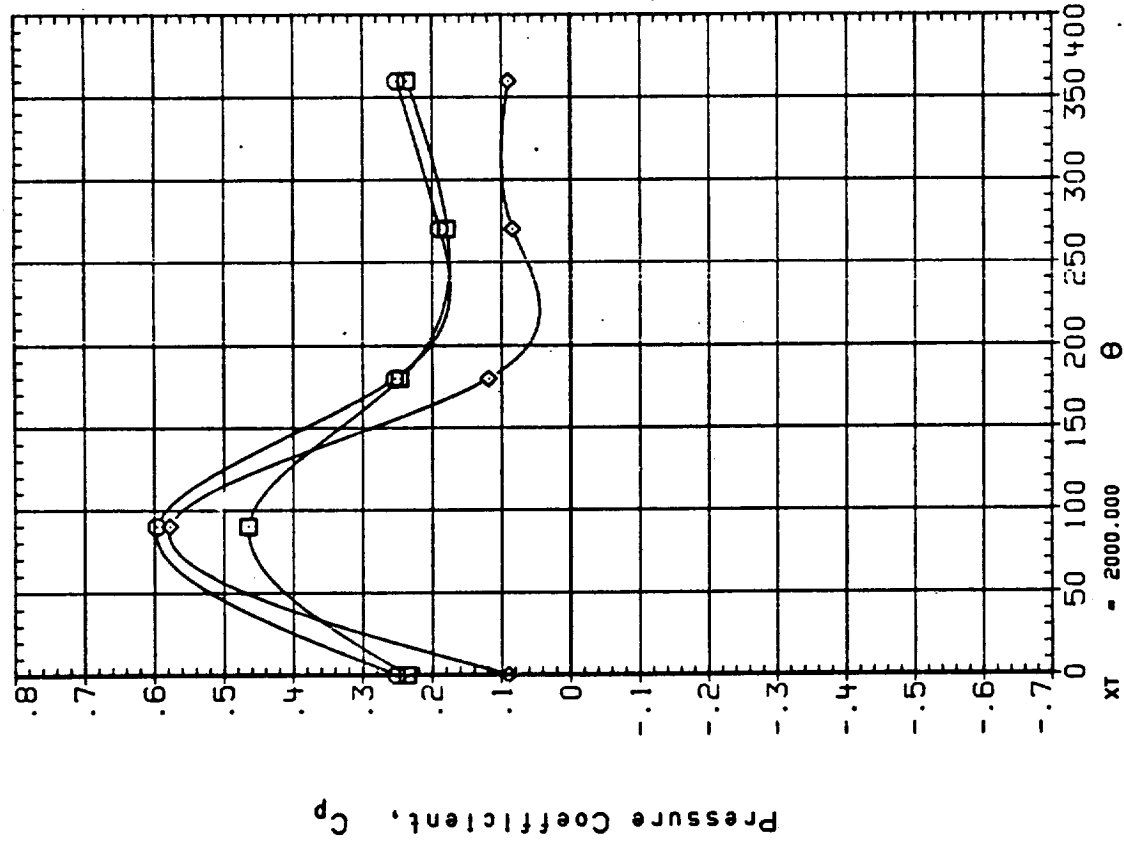


FIGURE 24. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE GH2 PRESSURE LINE

(13UC17) 1A190A, G02 PRESSURE LINE, (W/RAKE) RAMPS ON

SYMBOL	BETA		XT	ALPHA		MACH	PARAMETRIC VALUES		
	-4.000	.000		.000	.000		OB-ELV	IB-ELV	10.000
□			950.000				9.000		.000
◇	4.000								

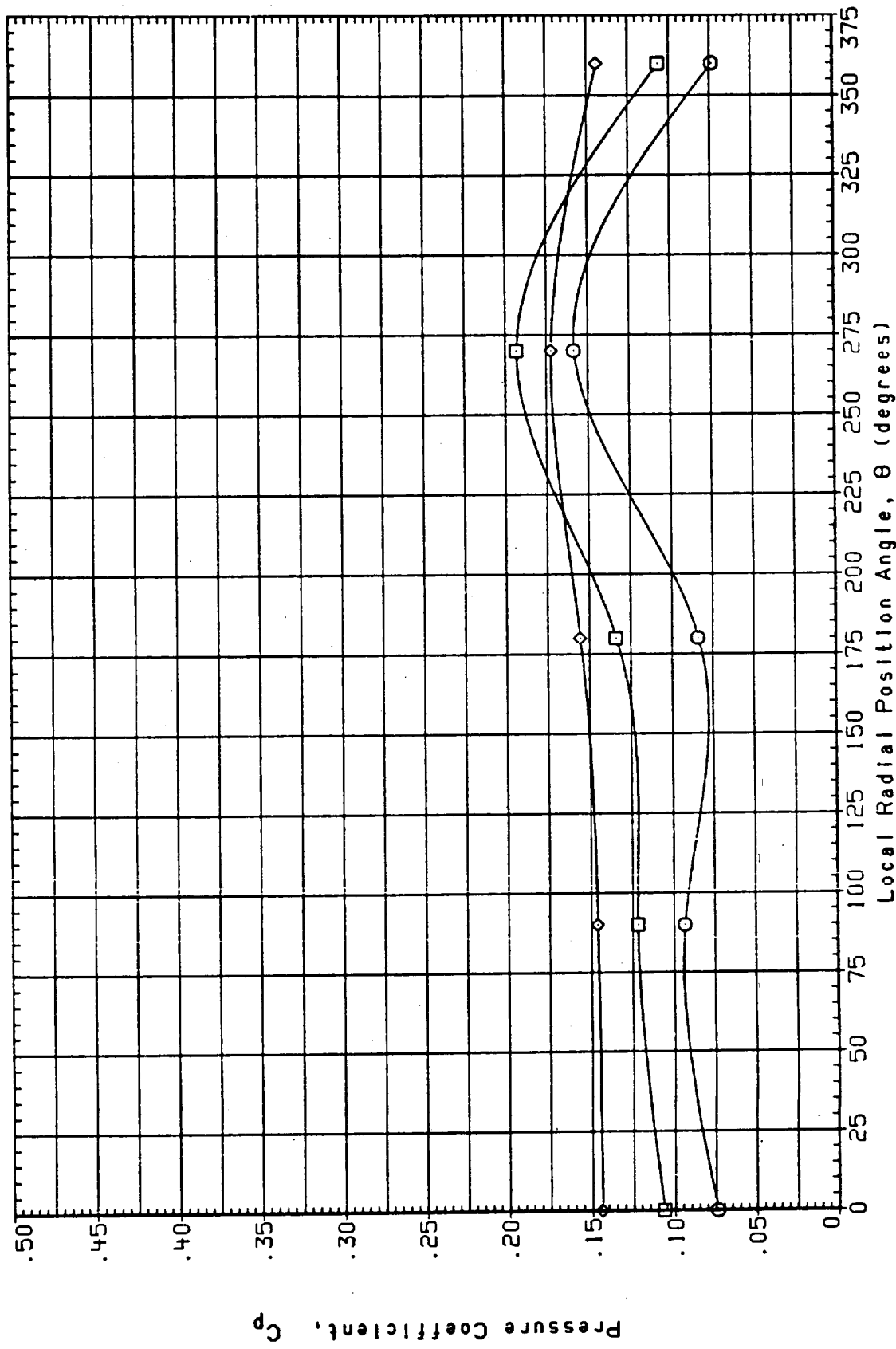


FIGURE 25. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE G02 PRESSURE LINE

(13UC20) 1A190A, G02 PRESSURE LINE, (W/RAKE) RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES
◇	-4.000	950.000	.000	1.250	.000	10.000
□	.000					.000

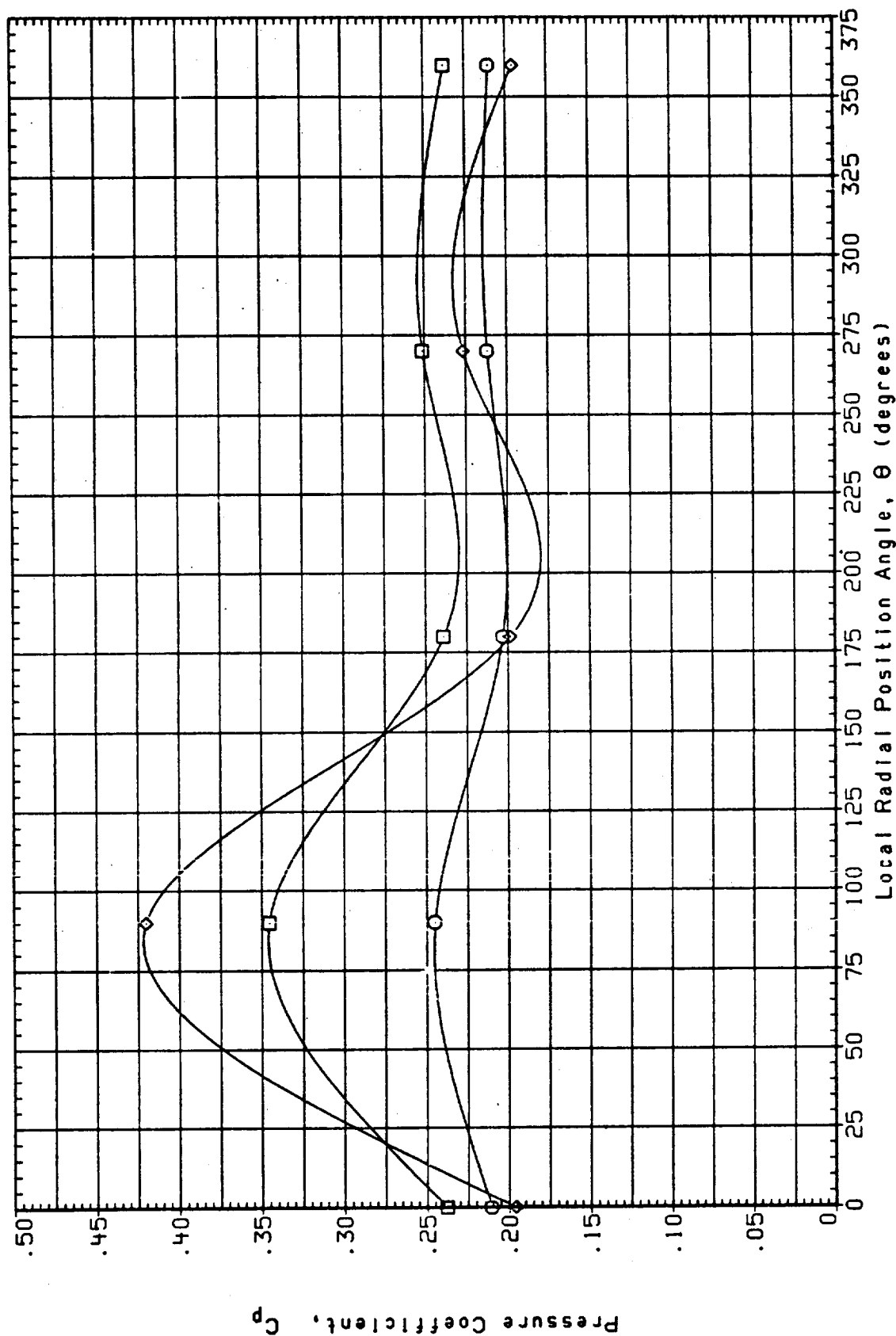


FIGURE 25. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE G02 PRESSURE LINE

(J3VC22) 1A190B, G02 PRESSURE LINE, RAMPS(2) ON

SYMBOL	BETA	XT	ALPHA	MACH	PARAMETRIC VALUES
□	-4.000	950.000	.000	1B-ELV	2.000 Q(PSF)
○	.000				8.000 0B-ELV
◇	4.000				600.000
					-5.000

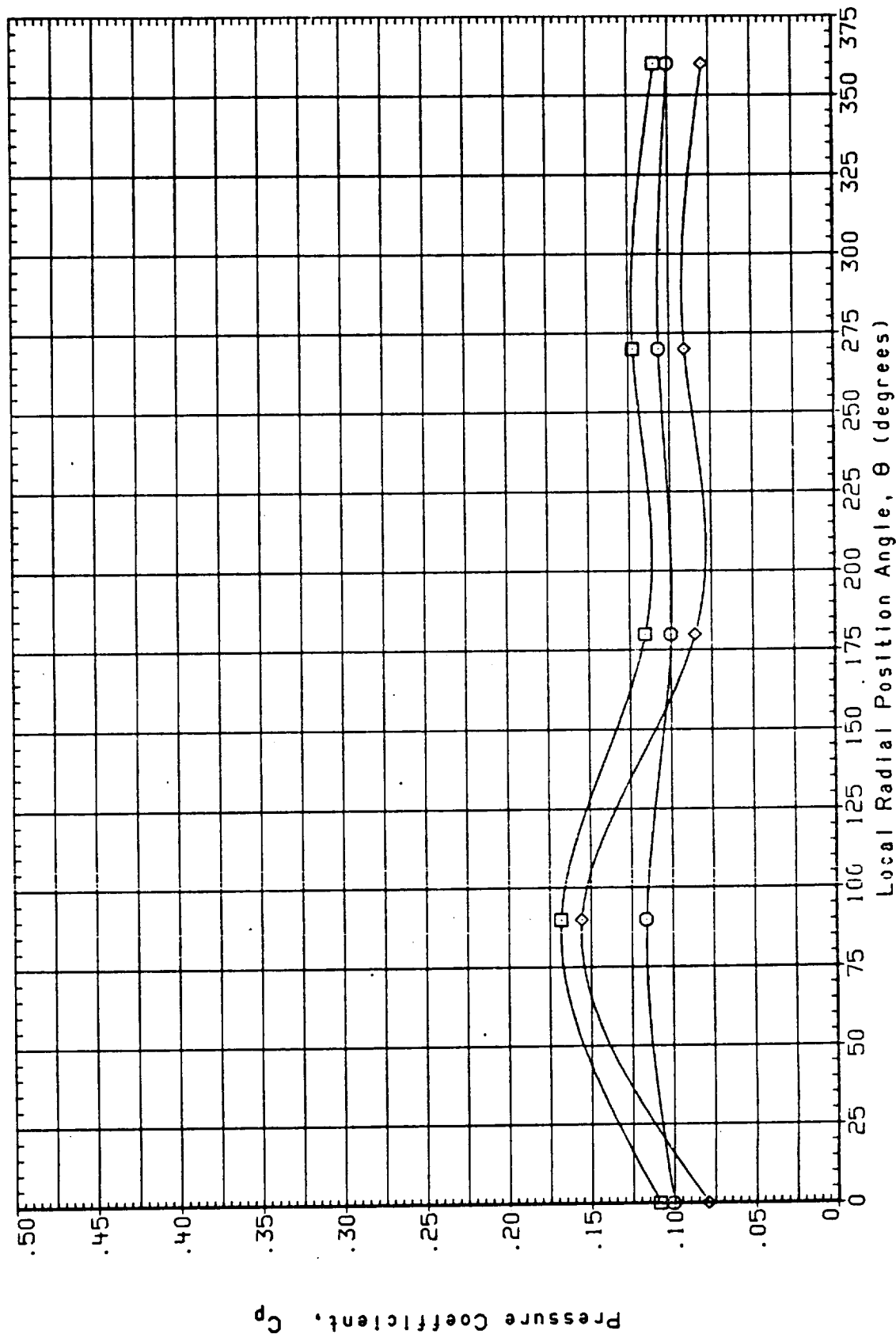


FIGURE 25. CIRCUMFERENTIAL PRESSURE DISTRIBUTIONS ON THE G02 PRESSURE LINE

(13UA17) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL BETA
 □ -4.000
 ○ .000
 ◇ 4.000

ALPHA
 .000

MACH
 OB-ELV

PARAMETRIC VALUES
 .600 1B-ELV
 9.000 GAP
 10.000

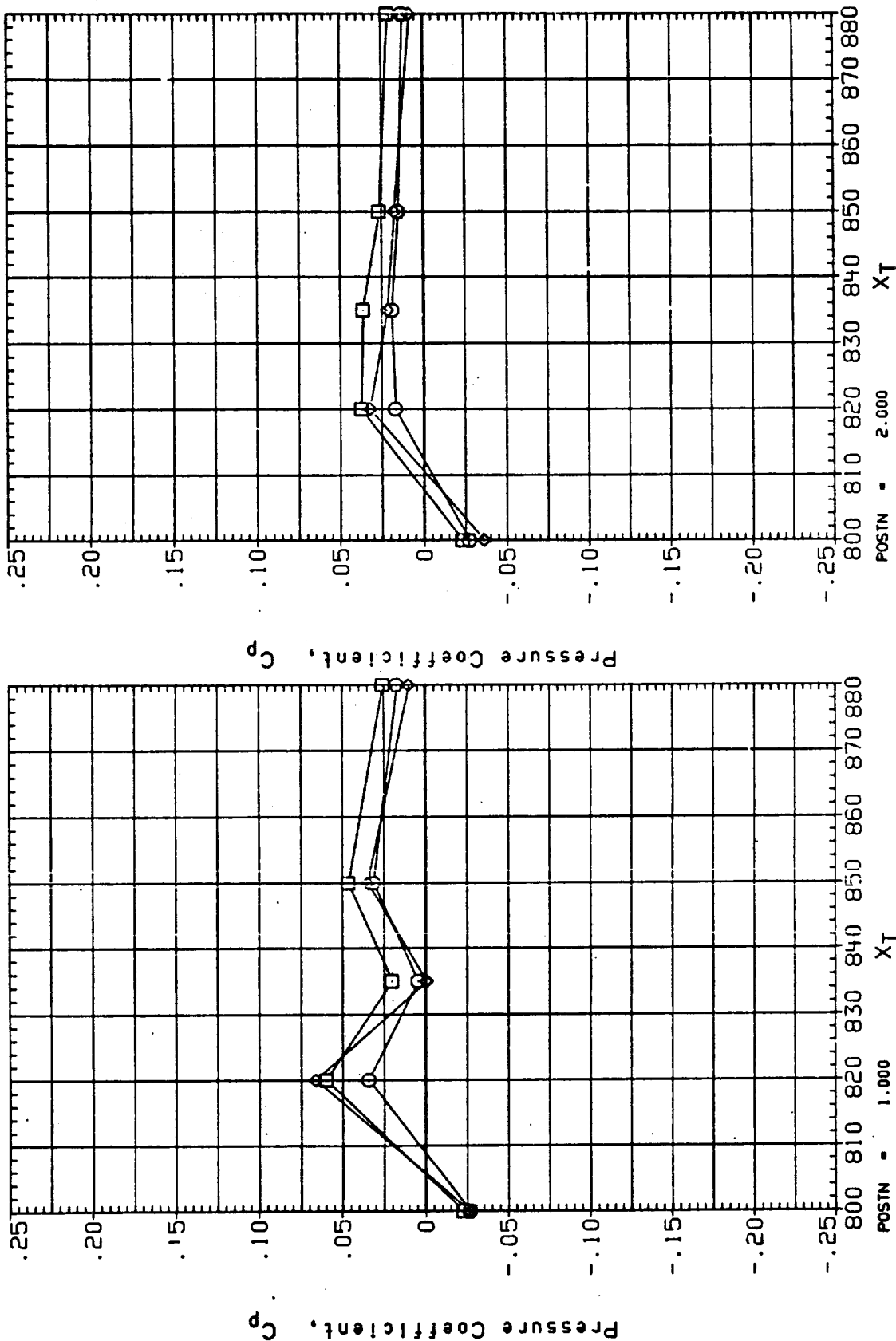


FIGURE 26. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LO2 TANK CABLE TRAY

(13UA17) 1A190A, TANK CABLE TRAY, (W/RAKE) HAMPS ON

SYMBOL
 ◇
 ○
 □

BETA
 -4.000
 .000
 4.000

MACH
 OB-ELV
 9.000
 10.000
 10.000

PARAMETRIC VALUES
 1B-ELV
 GAP

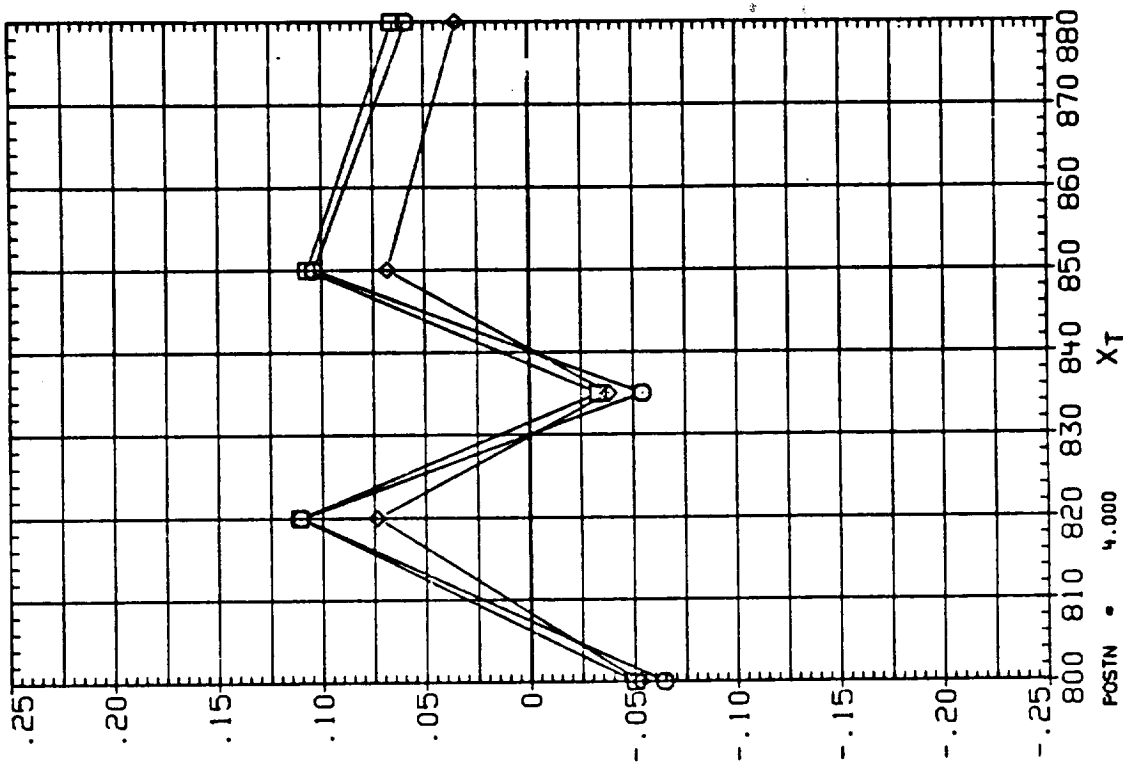
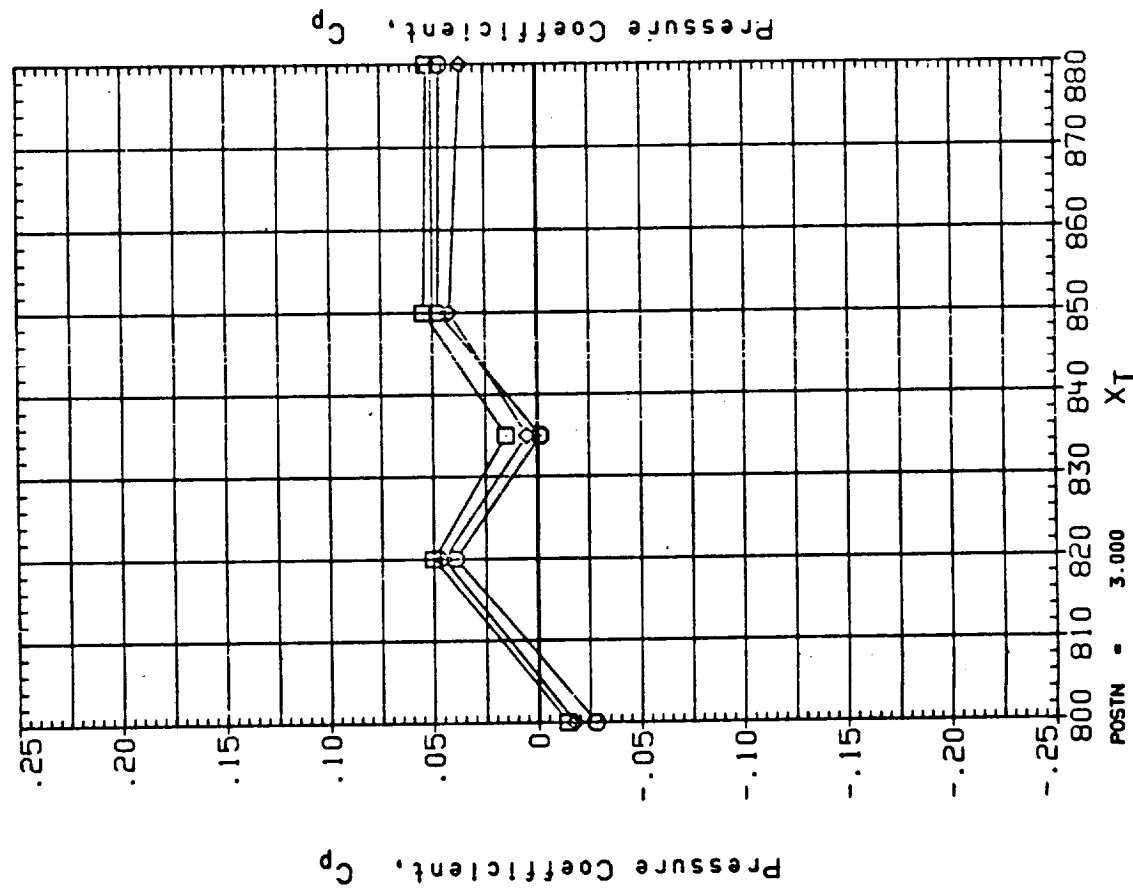


FIGURE 26. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE L02 TANK CABLE TRAY

(I3UA20) SYMBOL BET

SYMBOL

BETA

000
000
000
.
J J

ALPHA

.000

000
000.
J

IA190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

PARAMETRIC VALUES

MACH
OB-ELV

**IB-E
GAP**

10.000
000.000

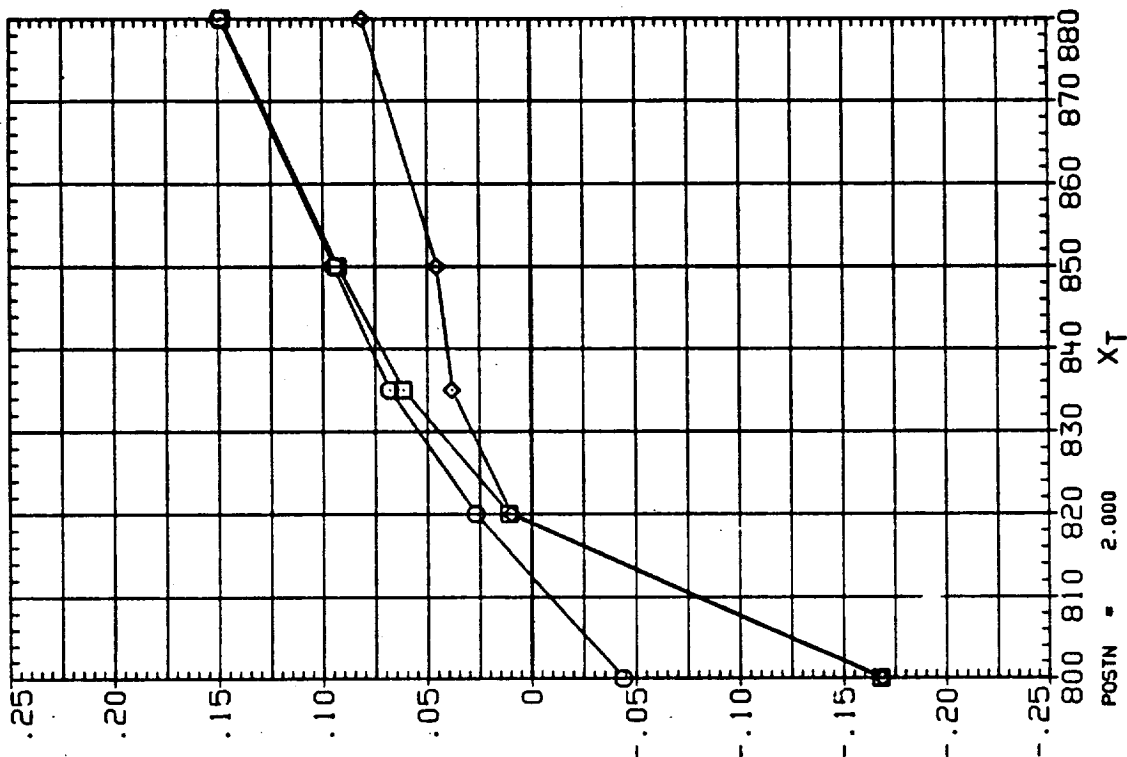
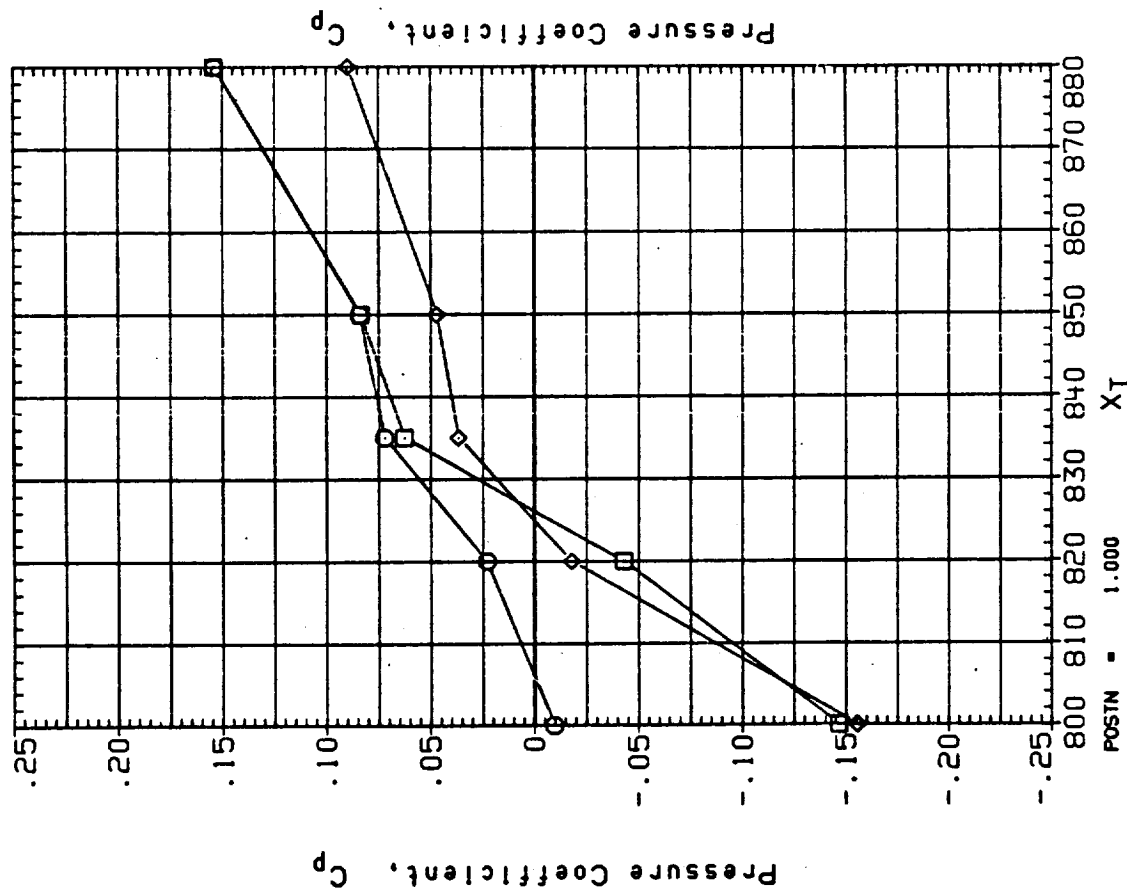


FIGURE 26. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LO2 TANK CABLE TRAY

(13UA20) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

PARAMETRIC VALUES
 MACH 1.250 18-ELV 10.000
 OB-ELV .000 GAP .000

SYMBOL BETA ALPHA
 □ -4.000 .000
 ○ .000 .000
 ◇ 4.000 .000

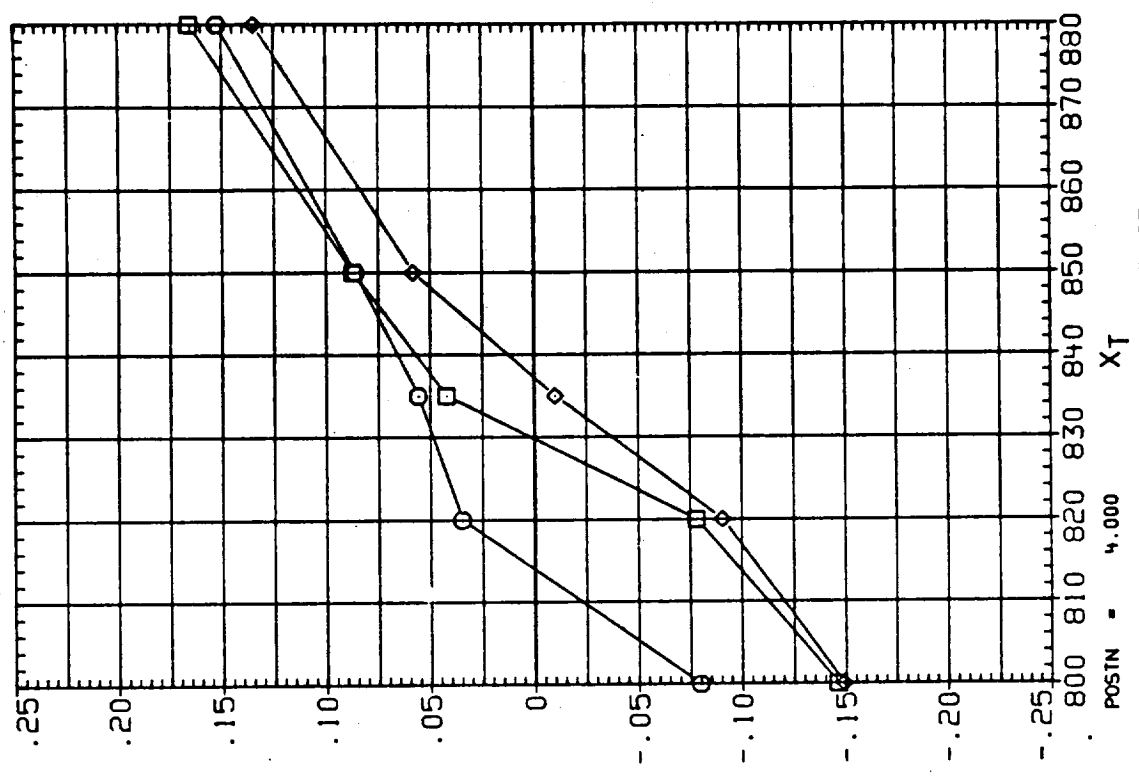
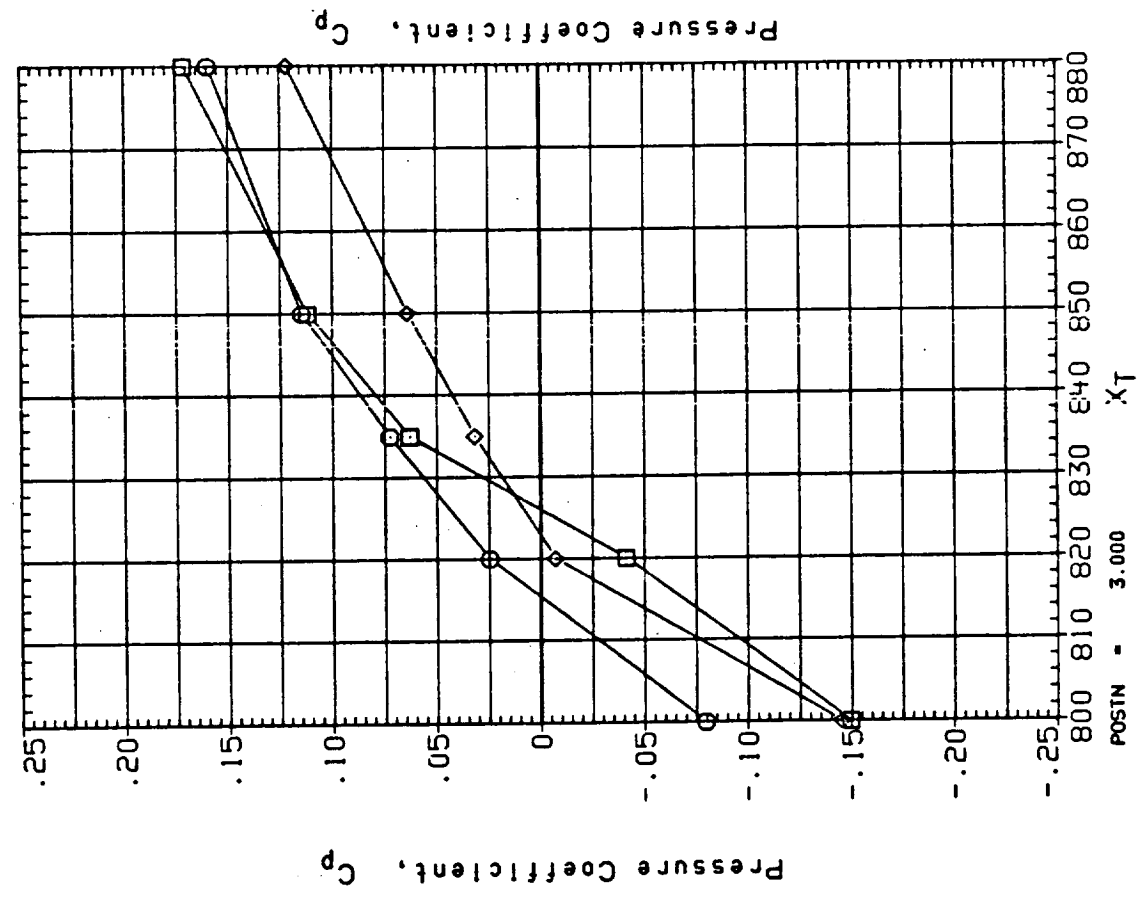


FIGURE 26. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LO2 TANK CABLE TRAY

(13VA22) 1A190B, ET CABLE TRAYS, RAMPS(2) ON

SYMBOL	BETA	ALPHA	MACH	IB-ELV	PARAMETRIC VALUES	Q(PSF)	600.000	8.000	2.000	08-ELV	-5.000
◇	-4.000	.000									
□	.000	.000									

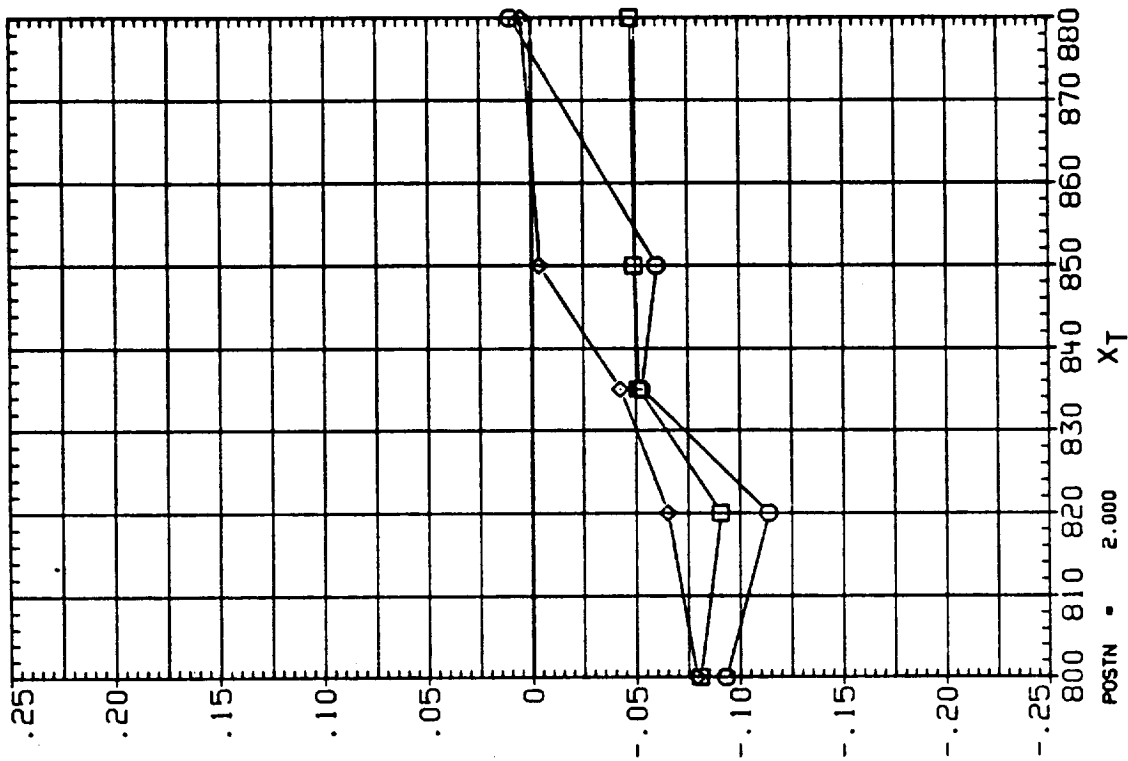
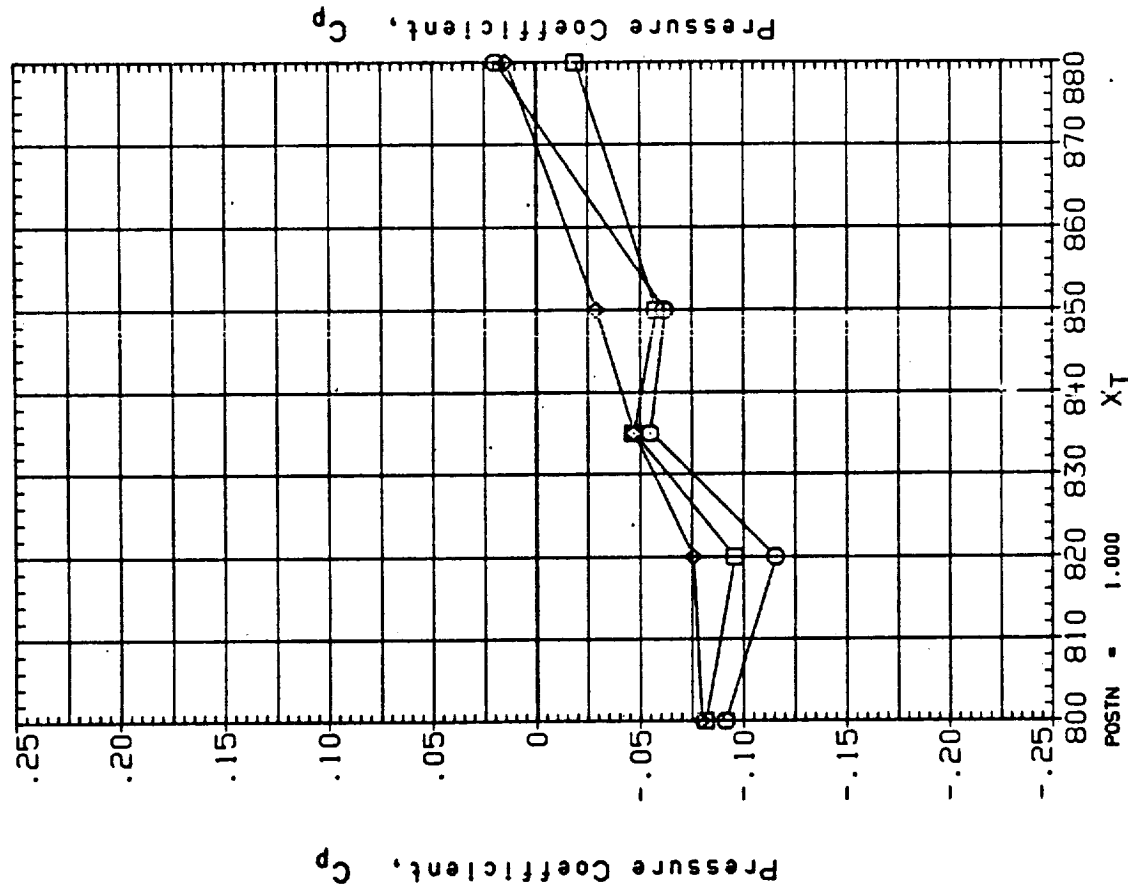


FIGURE 26. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LO2 TANK CABLE TRAY

(13VA22) 1A190B, ET CABLE TRAYS, RAMPS(2) ON

SYMBOL BETA ALPHA

◇ -4.000
□ .000
○ 4.000

PARAMETRIC VALUES
MACH 1B-ELV 2.000 8.000 600.000
Q(PSF) 0B-ELV -5.000

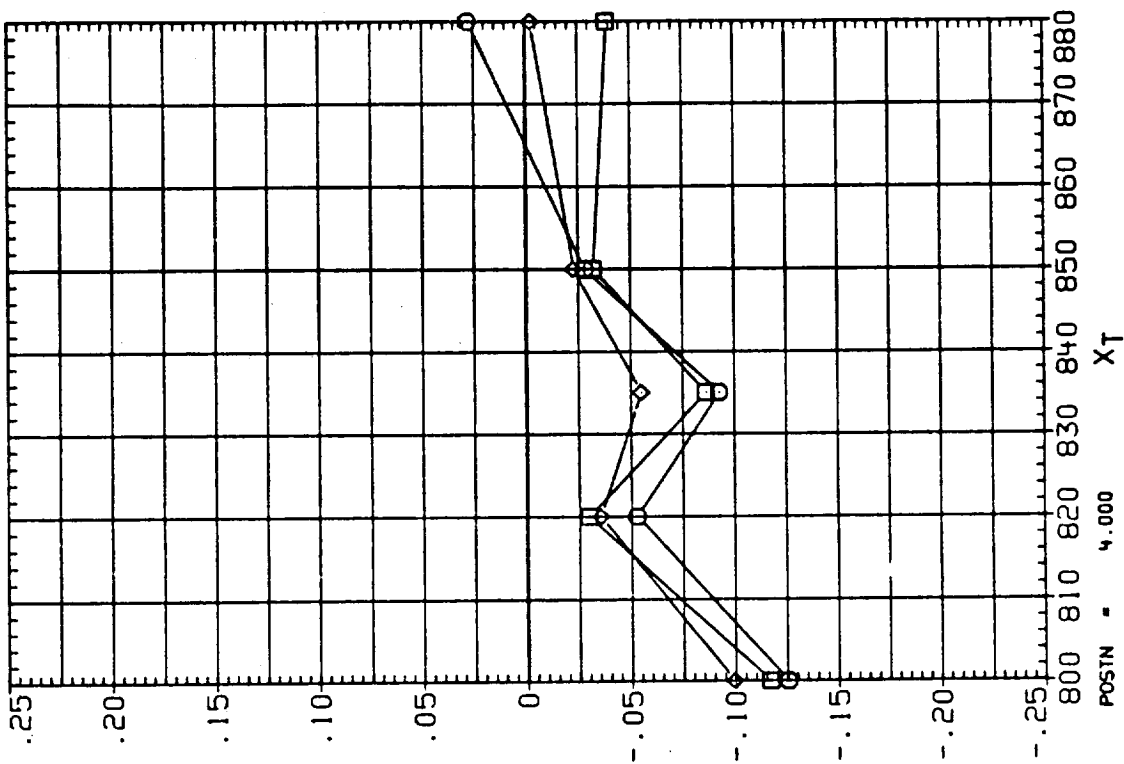
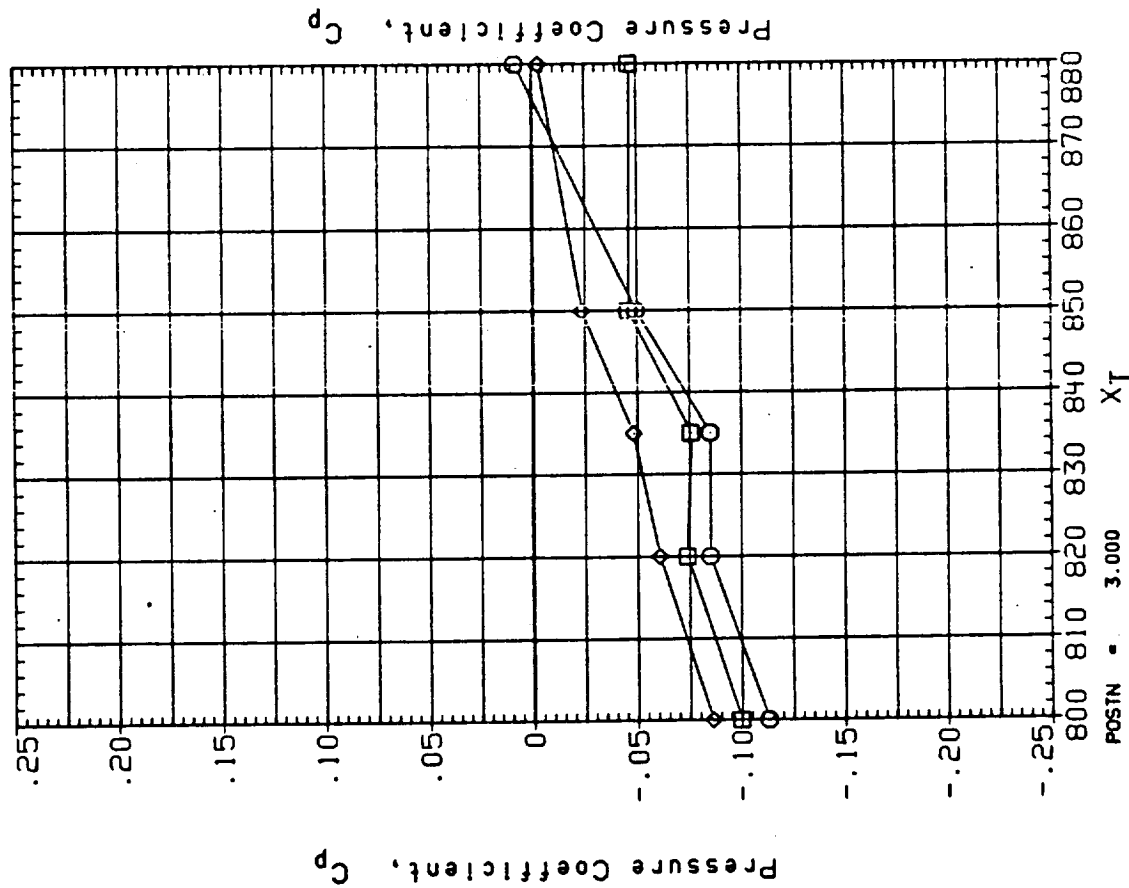


FIGURE 26. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LO2 TANK CABLE TRAY

(13UA17) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL	BETA	POSTN	ALPHA	MACH	OB-ELV	PARA-METRIC VALUES	IB-ELV	10.000
◇	-4.000	1.000	.000				9.000	.000
□	4.000							

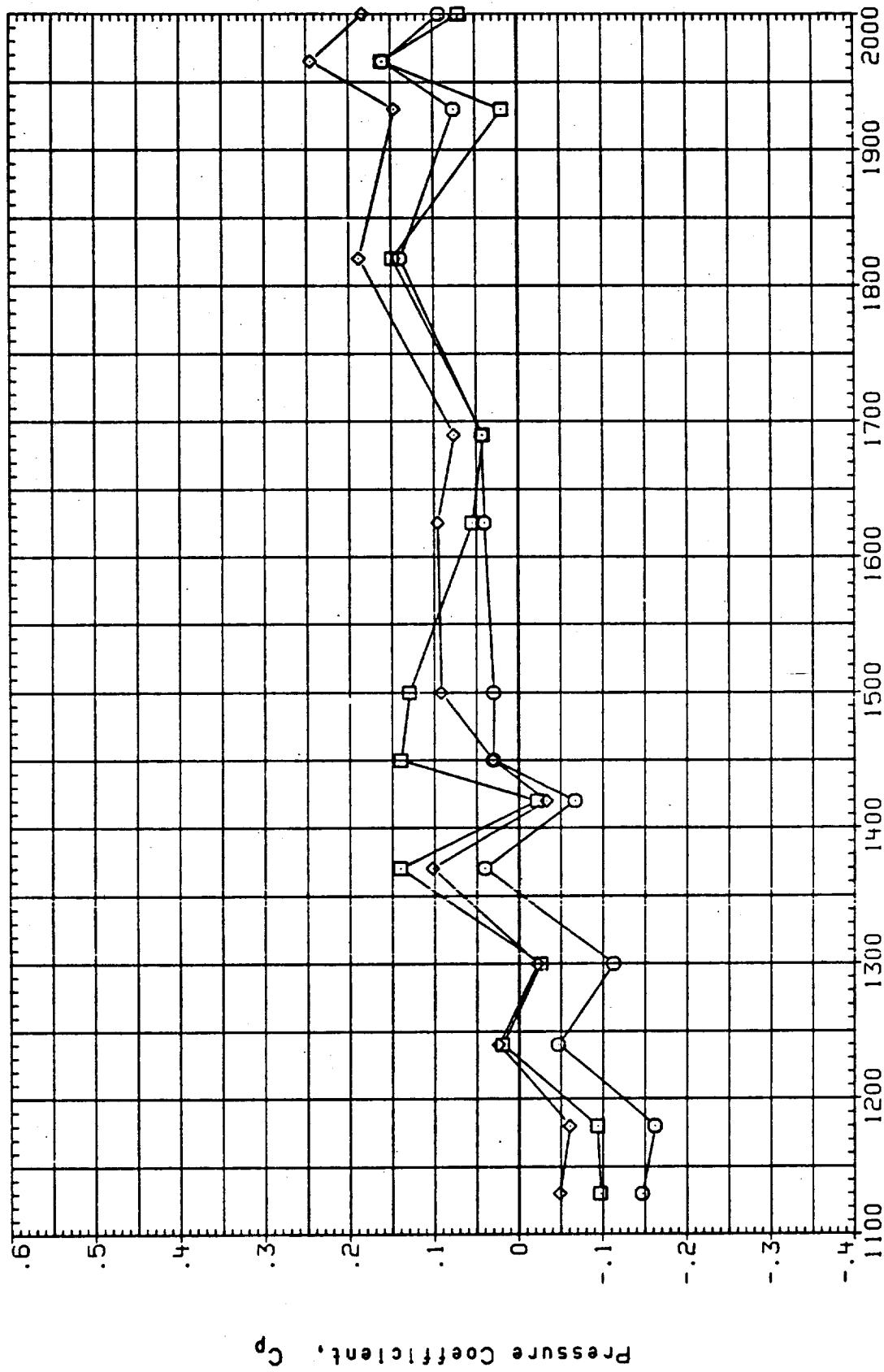


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13UA17) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL	BETA	POSTN	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES
○	-4.000	2.000	.000			.600
□	.000					9.000
◇	4.000					10.000

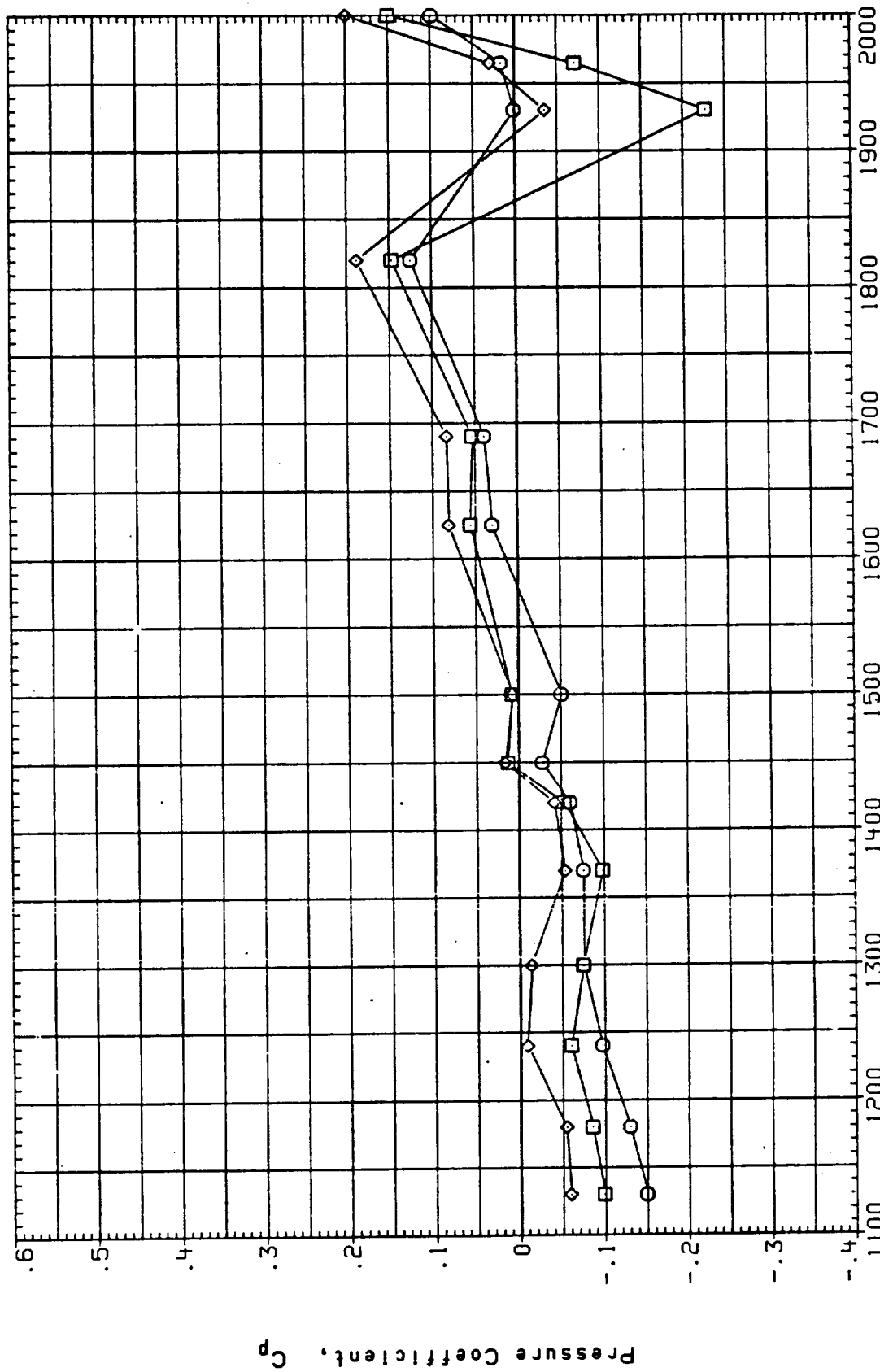


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13U17) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL BETA POSTN ALPHA .000
 -4.000 3.000
 .000 4.000

PARAMETRIC VALUES
 MACH 10.000
 OB-ELV 18-ELV
 9.000 GAP

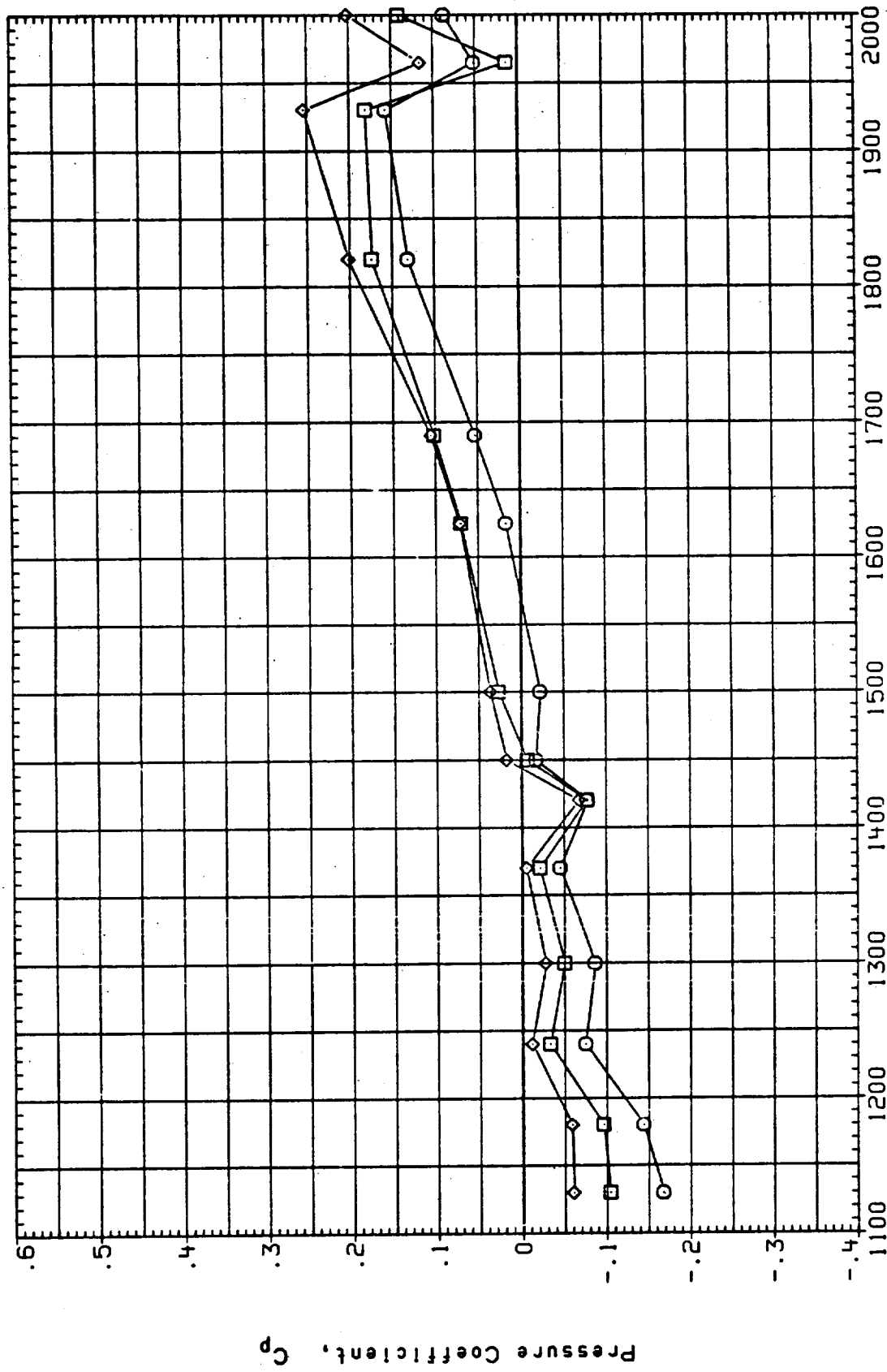


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

C-5

(13UA17) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL	BETA	POSTN	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES
◇	-4.000	4.000	.000			.600
□	.000					9.000
○	4.000					10.000
						GAP
						.000

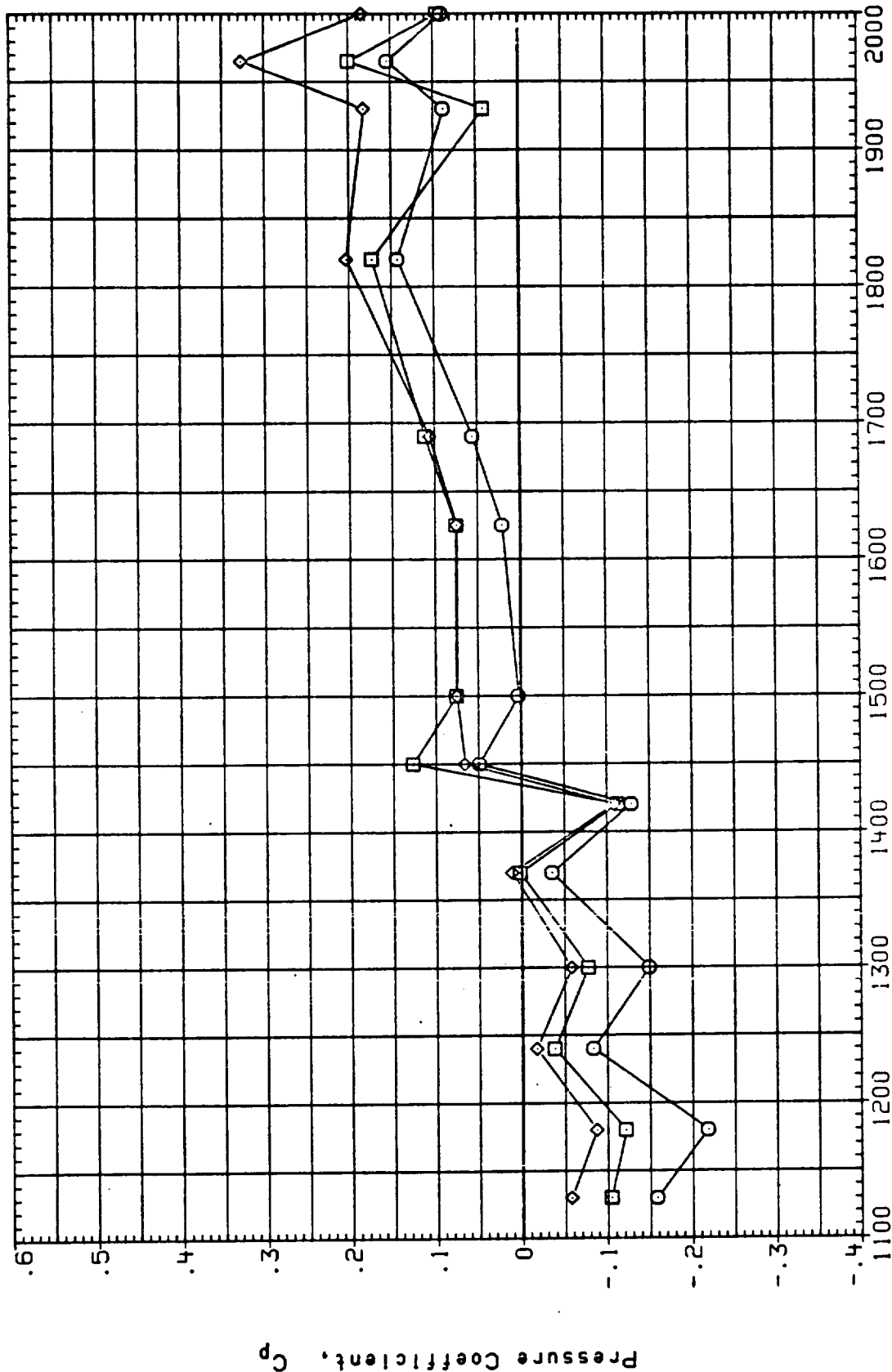


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13UA20) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL	BETA	POSTN	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES
◇	-4.000	1.000	.000	1.250	18-ELV	10.000
○	.000			.000	GAP	.000
□	4.000					

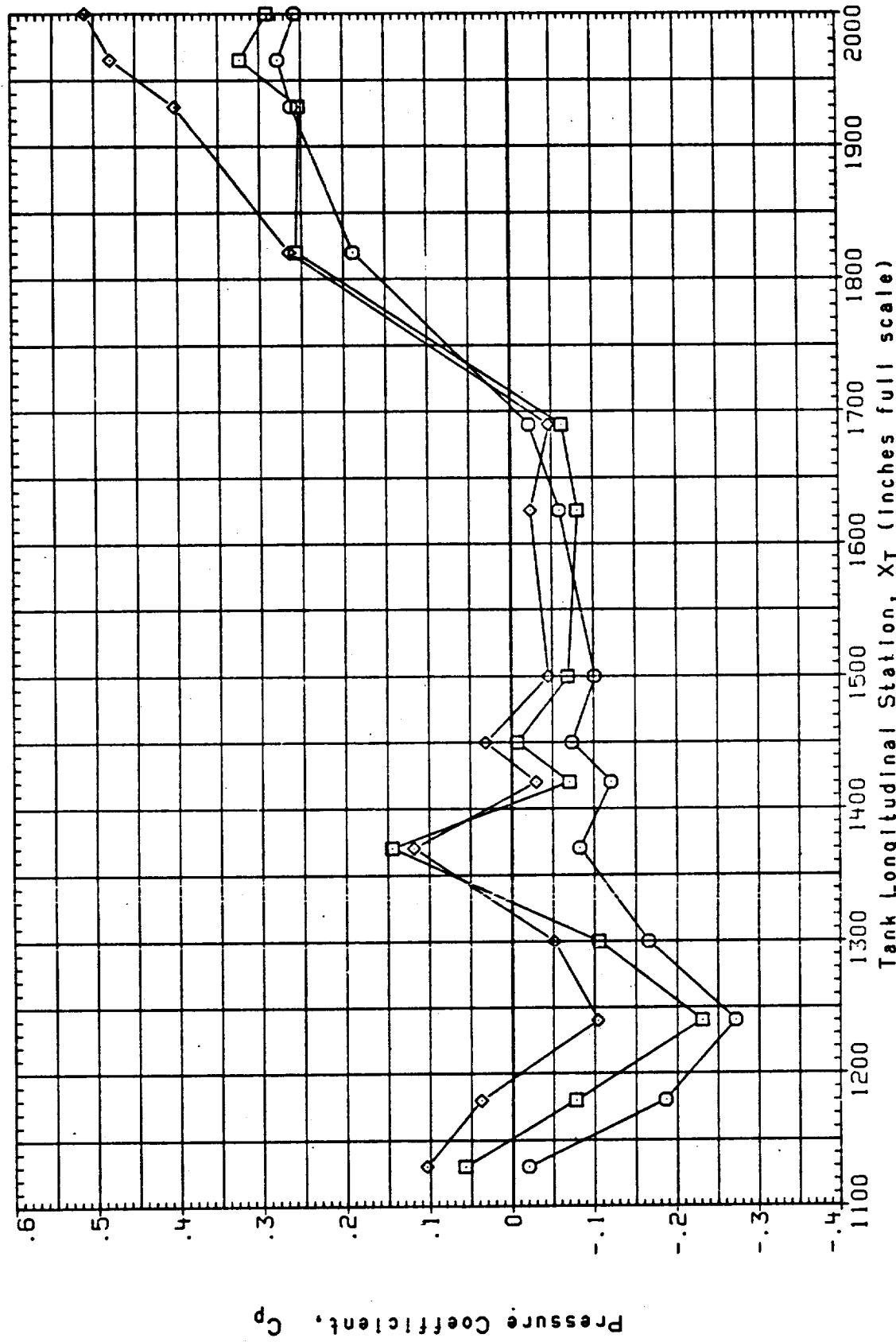


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13UA20) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL BETA POSTN ALPHA
 -4.000 2.000 .000
 .000
 4.000

PARAMETRIC VALUES
 MACH 10.000
 OB-ELV 1.250 1B-ELV .000
 GAP

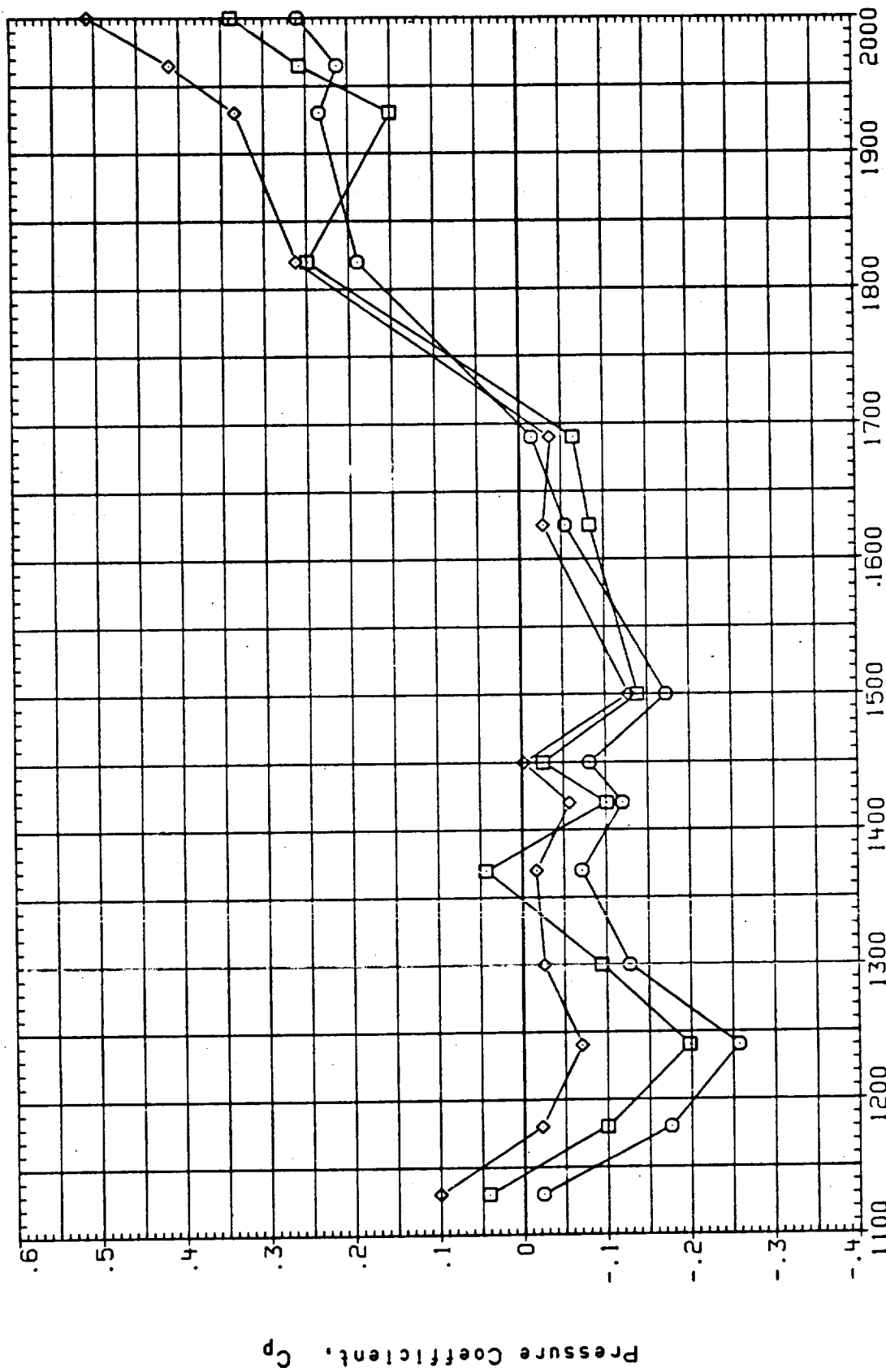


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13UA20) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL	BETA	POSTN	ALPHA	MACH	PARAMETRIC VALUES
○	-4.000	3.000	.000	08-ELV	1.250 18-ELV 10.000
◇	4.000			GAP	.000

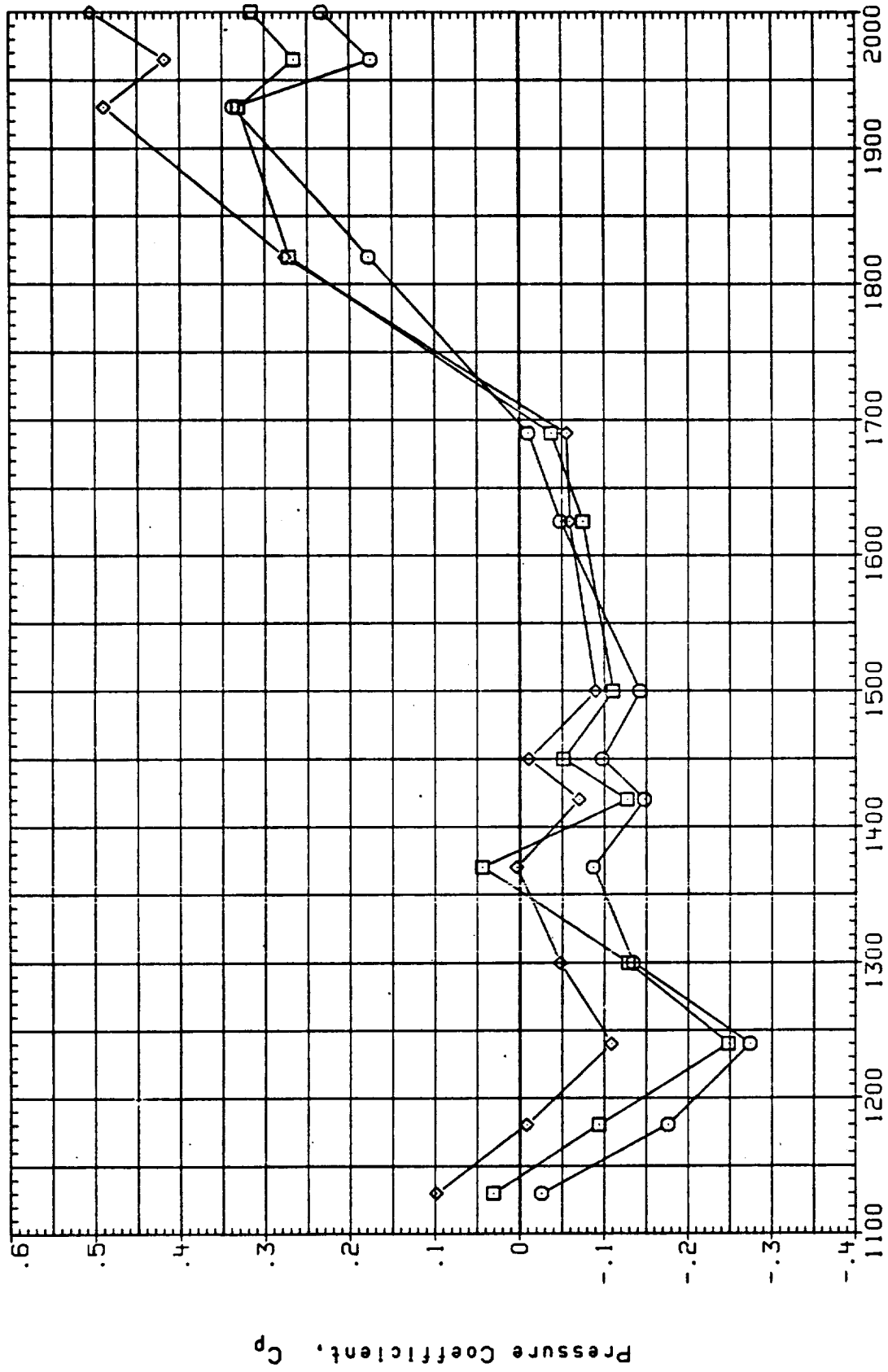


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13UA20) 1A190A, TANK CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL BETA POSTN ALPHA MACH OB-ELV 1B-ELV GAP 10.000 .000

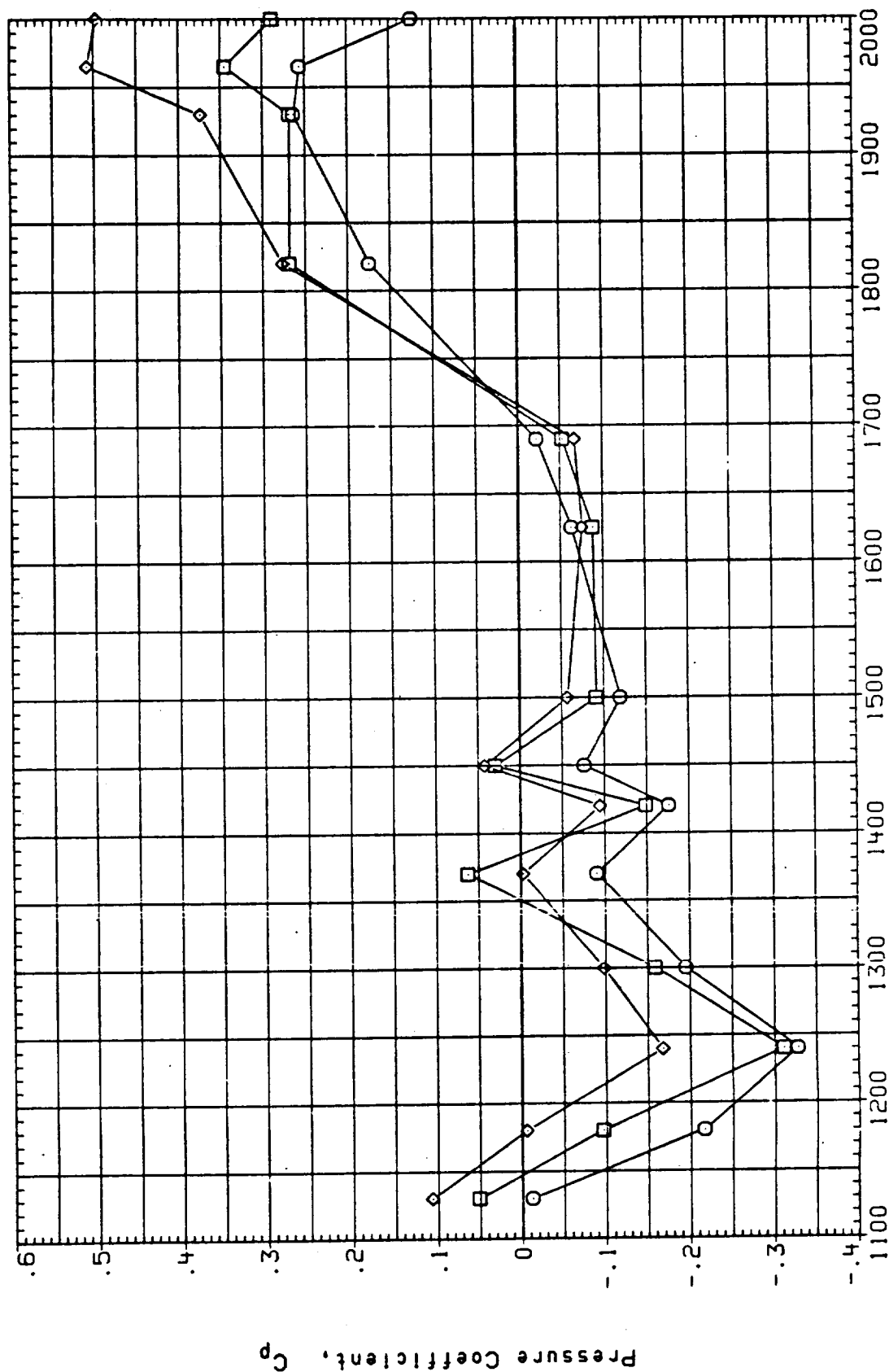


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13VA22) 1A190B, ET CABLE TRAYS, RAMPS(2) ON

PARAMETRIC VALUES
 2.000 600.000
 8.000 08-ELV
 600.000
 -5.000

MACH
 1B-ELV

ALPHA
 .000

POSTN
 1.000

BETA
 -4.000
 .000
 4.000

SYMBOL
 □
 ◇

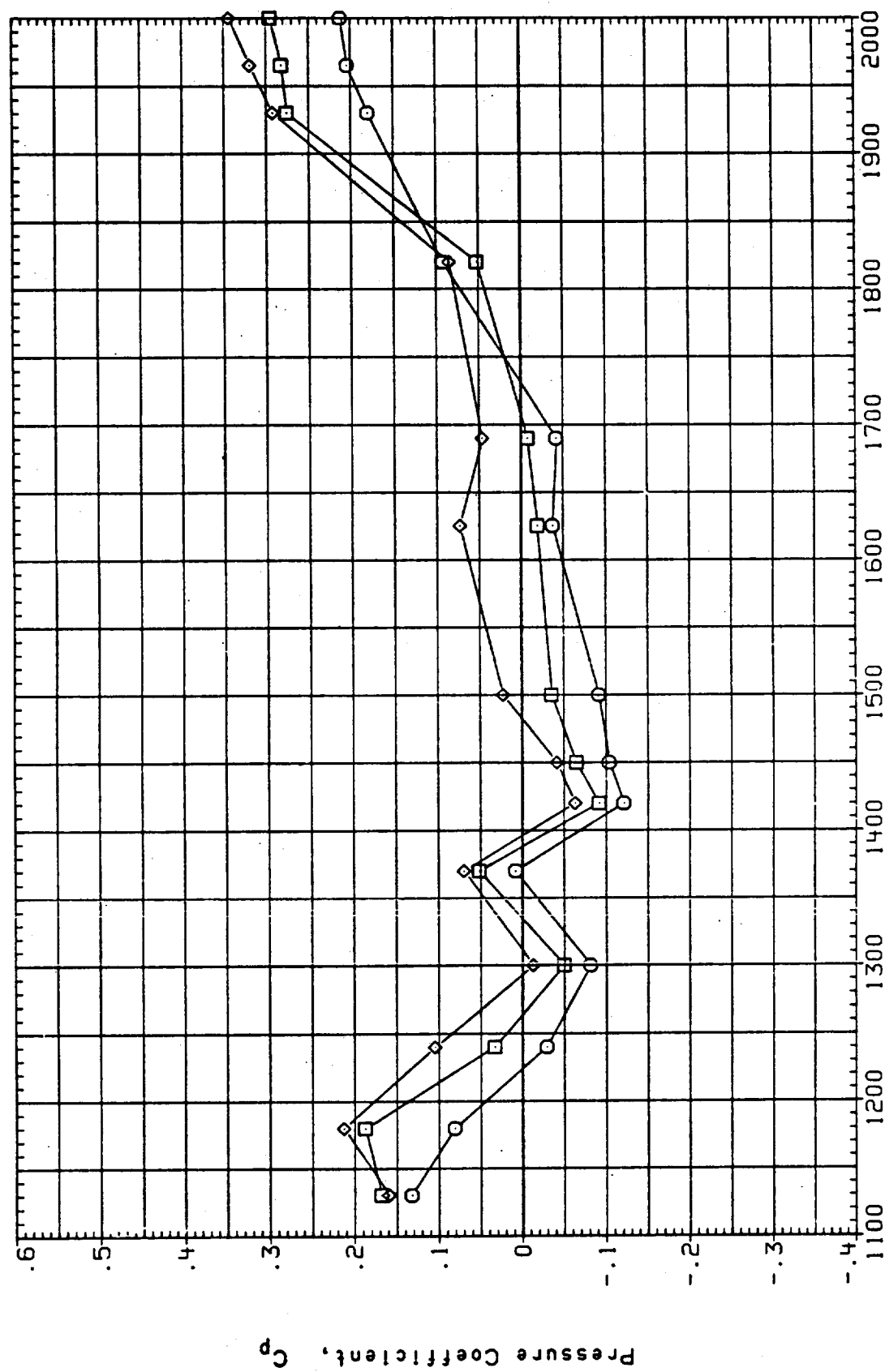


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13VA22) 1A190B, ET CABLE TRAYS, RAMPS(2) N

PARAMETRIC VALUES
MACH 2.000 8.000 600.000
1B-ELV 0B-ELV -5.000

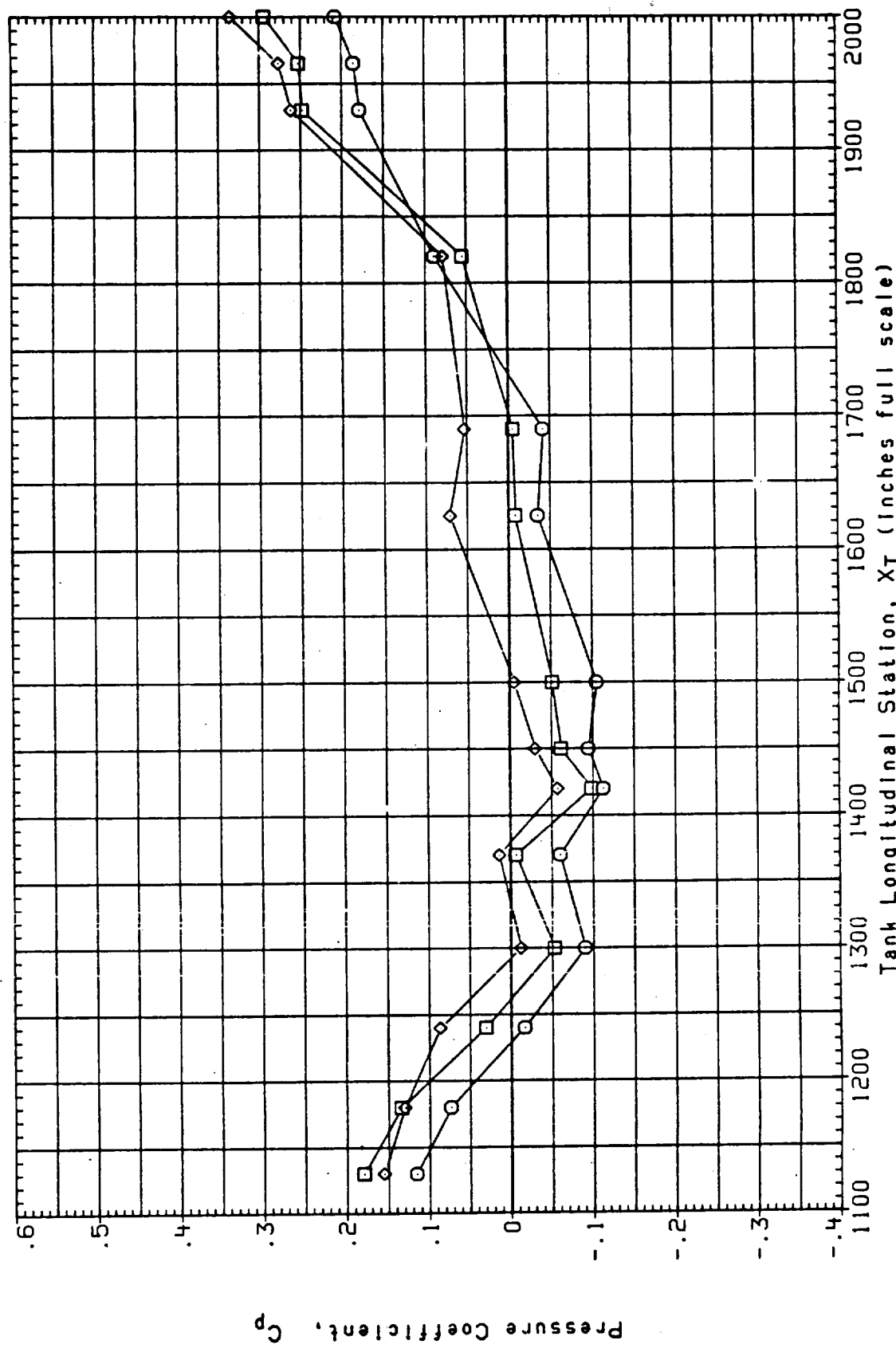


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13VA22) 1A190B, ET CABLE TRAYS, RAMPS(2) ON

SYMBOL
 □
 ◇

BETA
 -4.000
 .000
 4.000

POSTN
 3.000

ALPHA
 .000

MACH
 18-ELV

PARAMETRIC VALUES
 2.000
 8.000

Q(PSF)
 600.000
 -5.000

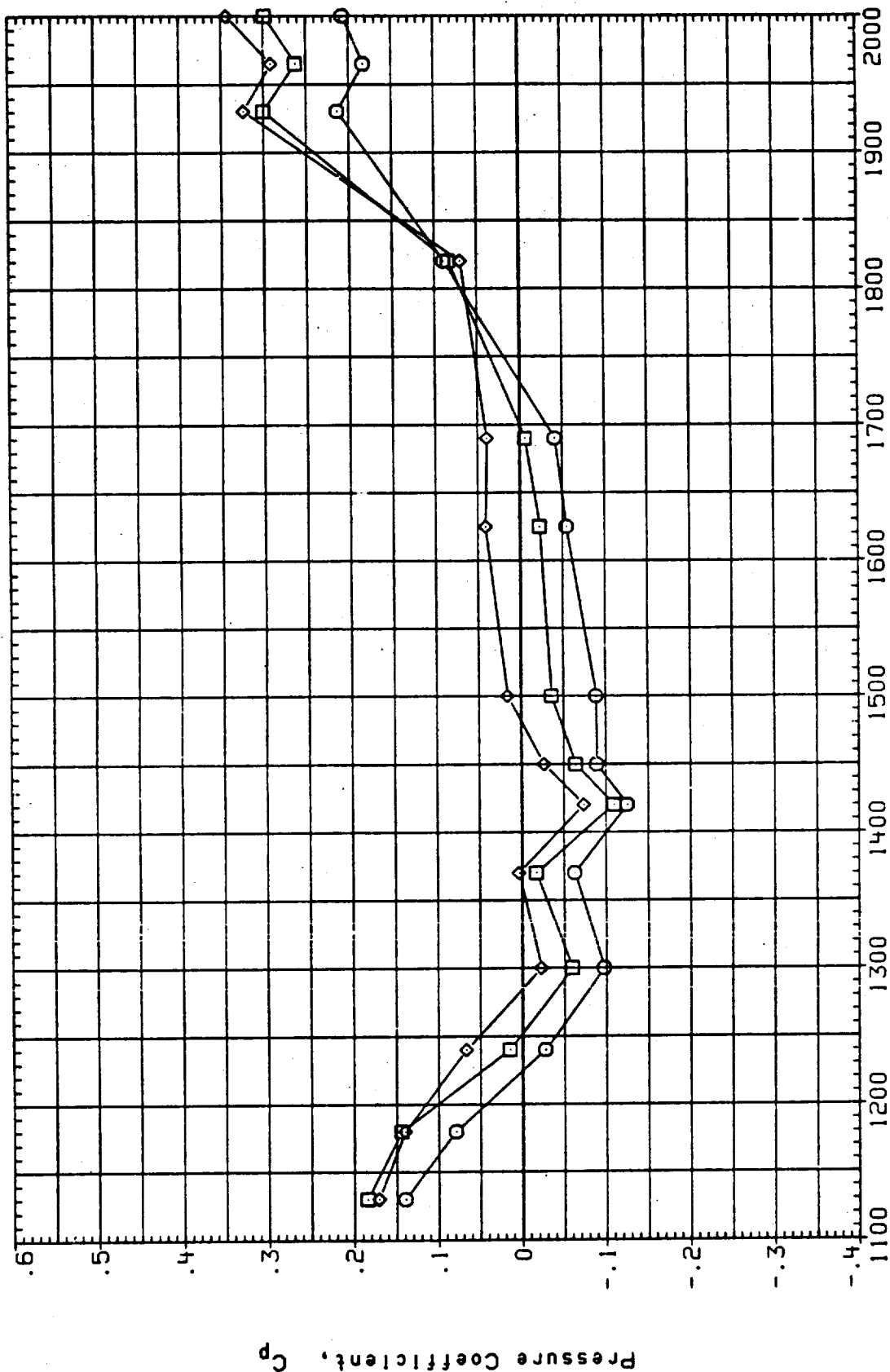


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13VA22) 1A1908, ET CABLE TRAYS, RAMPS(2) ON

SYMBOL
 □ ○ ◇

BETA
 -4.000
 .000
 4.000

POSTN
 4.000

ALPHA
 .000

MACH
 18-ELV

PARAMETRIC VALUES
 2.000 600.000
 8.000 Q(PSF) 1900
 08-ELV -5.000

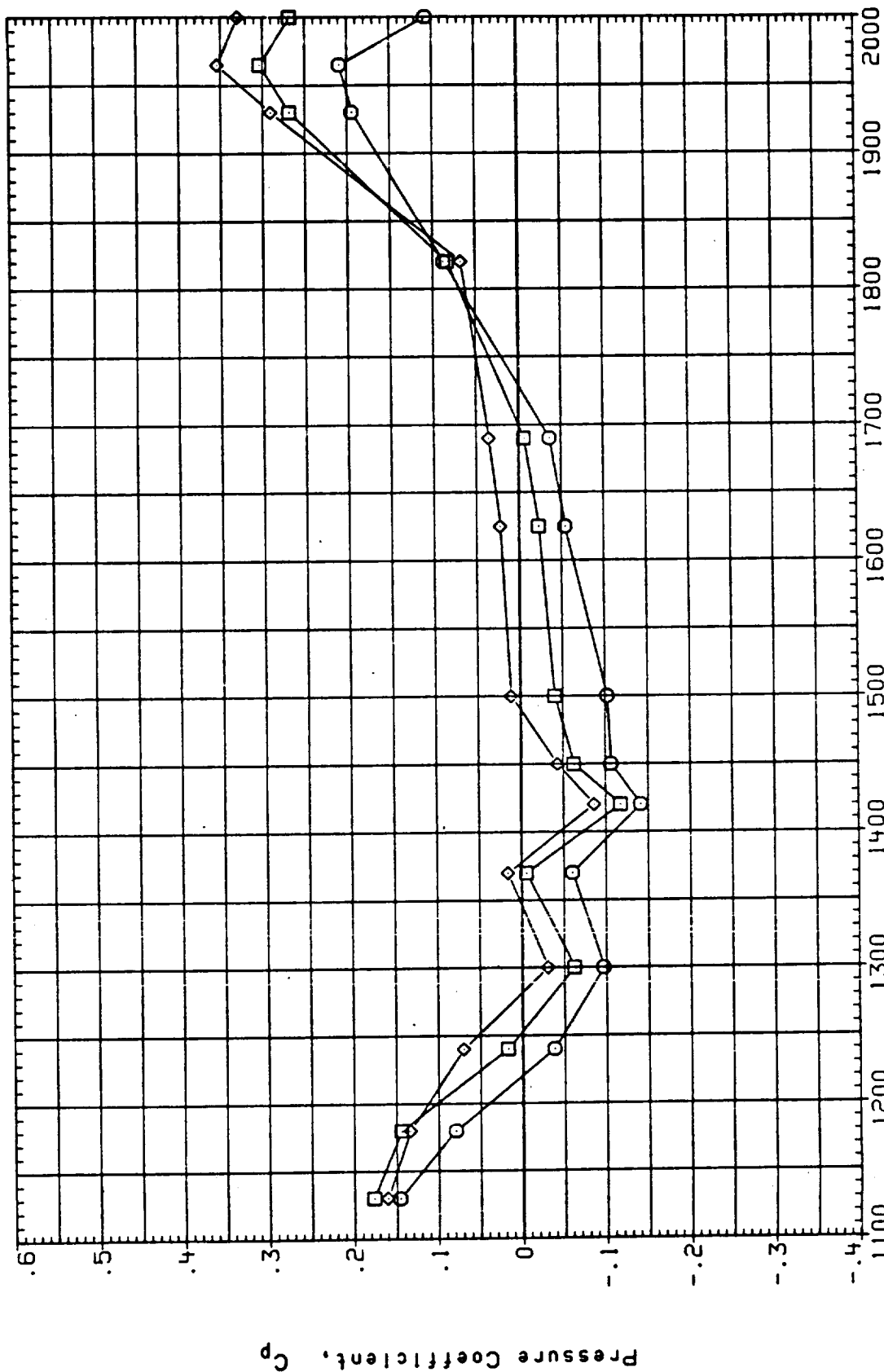


FIGURE 27. LONGITUDINAL PRESSURE DISTRIBUTIONS ON THE LH2 TANK CABLE TRAY

(13JUG17) 1A190A, ET/SRB CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL	BETA	ALPHA	MACH	PARAMETRIC VALUES
□	-4.000	.000	08-ELV	.500
◇	.000	.000	09-ELV	9.000
	4.000			10.000
				.000

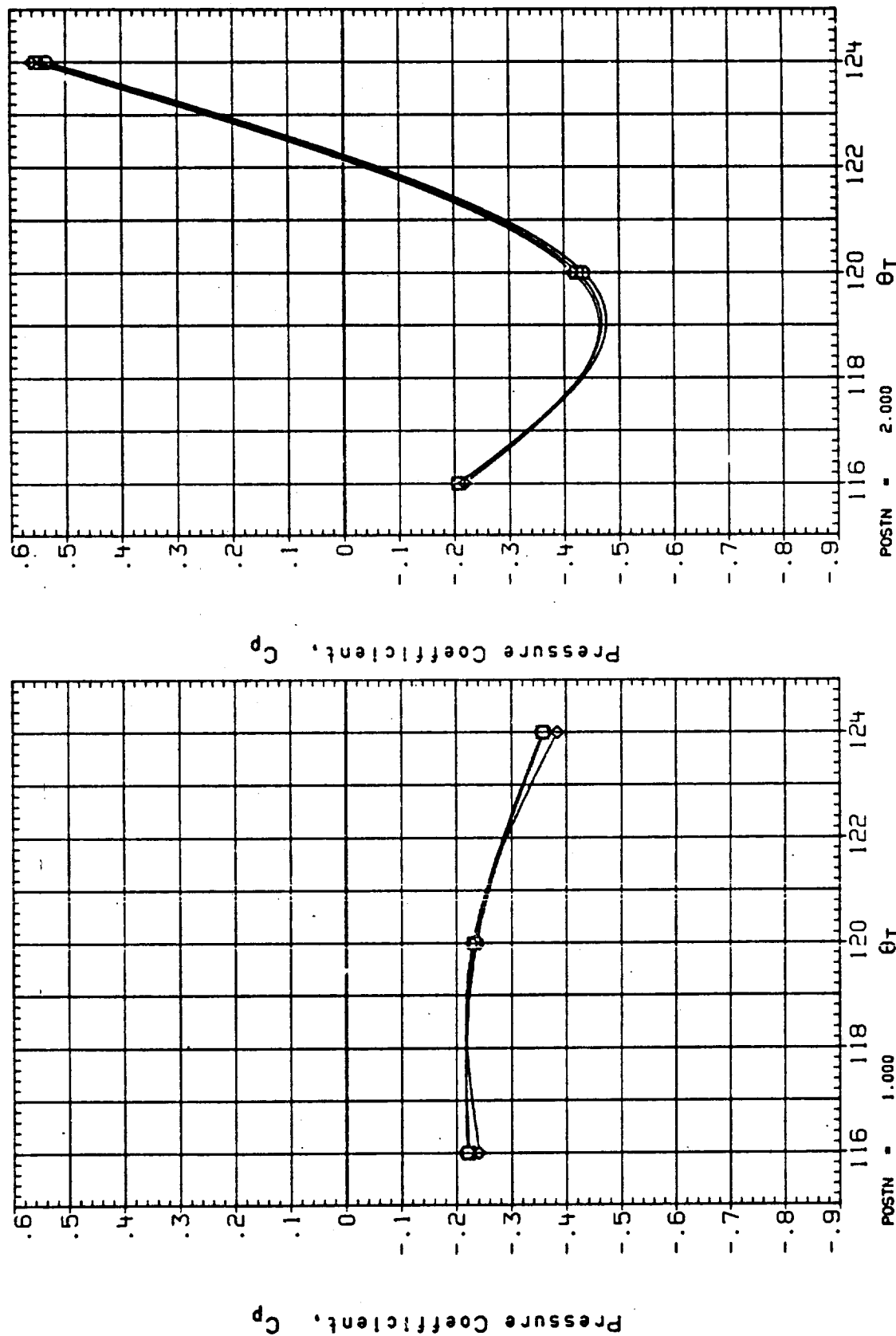


FIGURE 28. PRESSURE DISTRIBUTIONS ON THE ET/SRB TANK CABLE TRAY

(13UG17) 1A190A, ET/SRB CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL
 □ 4.000
 ◇ 4.000

BETA
 -4.000
 .000
 4.000

MACH
 08-ELV

PARAMETRIC VALUES
 .600 18-ELV 10.000
 9.000 GAP .000

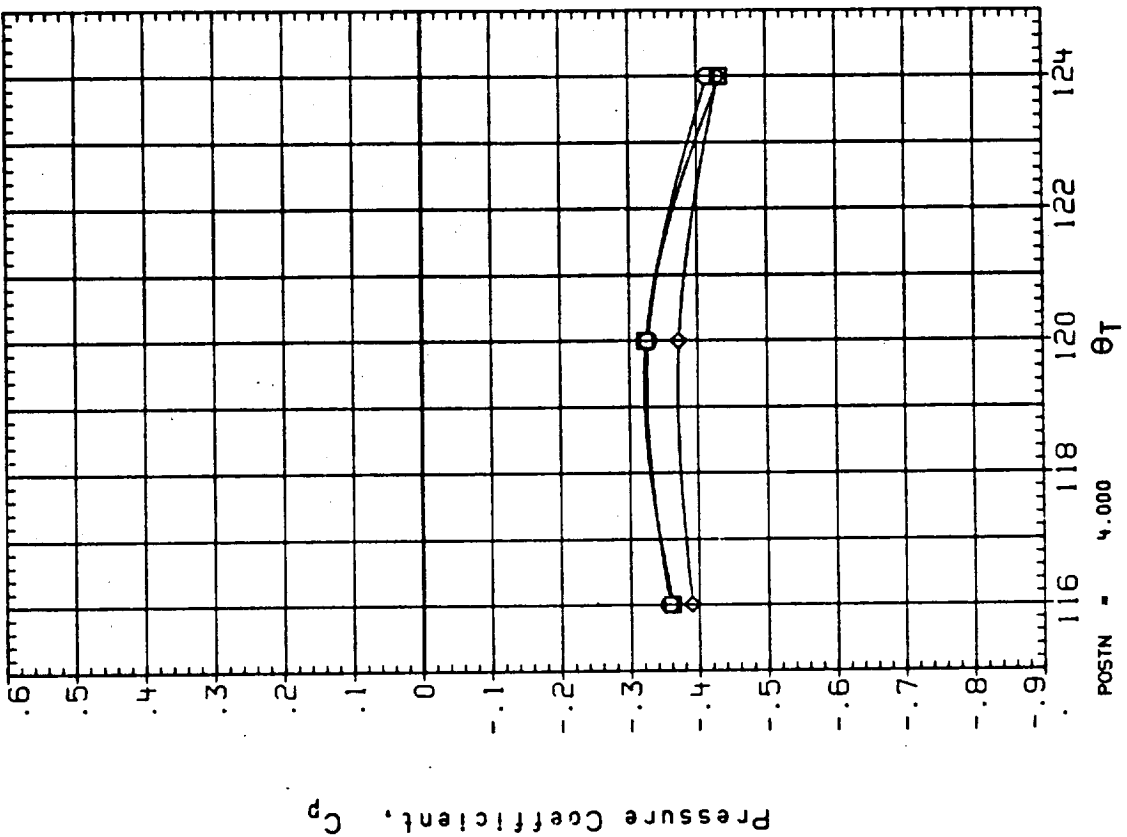
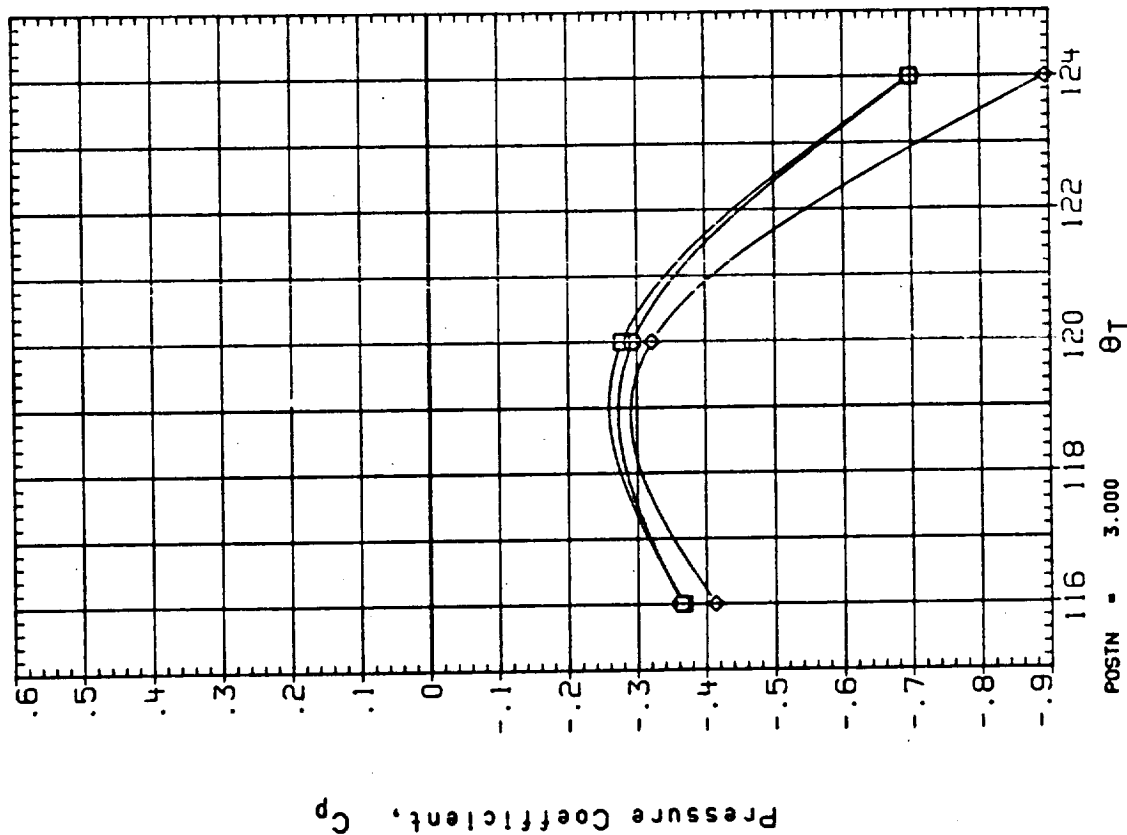


FIGURE 28. PRESSURE DISTRIBUTIONS ON THE ET/SRB TANK CABLE TRAY

(13UG20) IA190A, ET/SRB CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL BETA ALPHA MACH OB-ELV 18-ELV GAP 10.000 .000

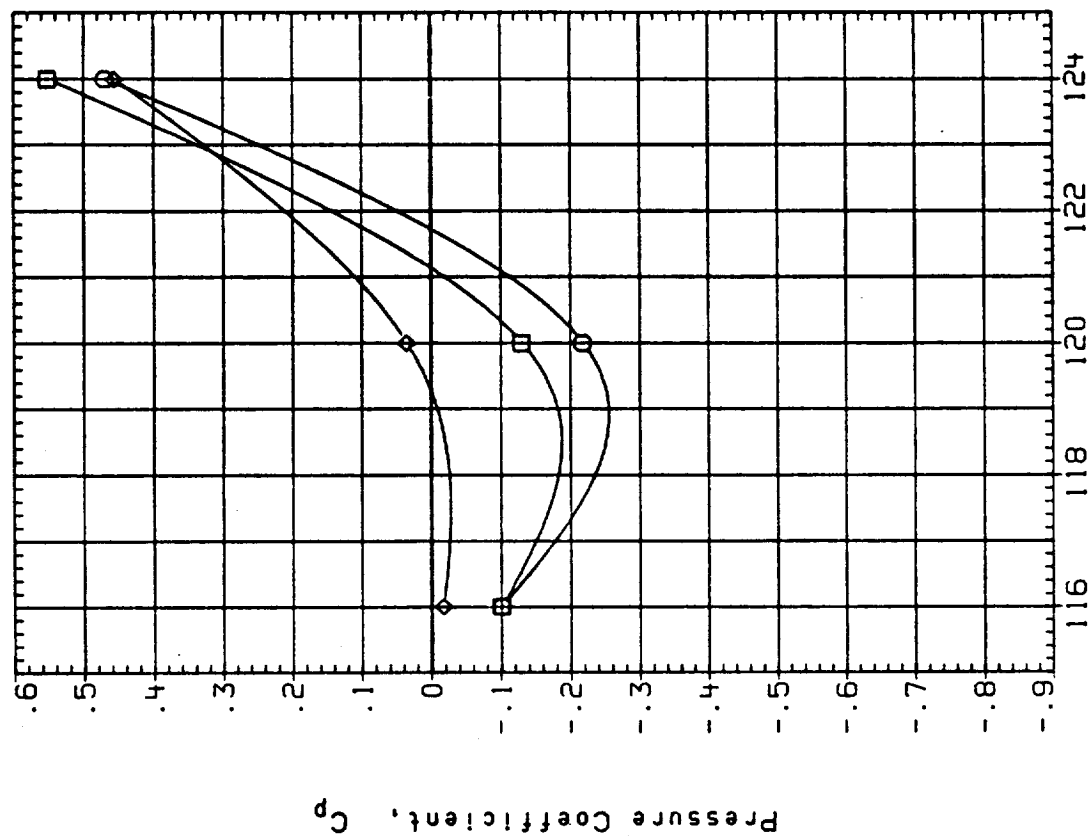
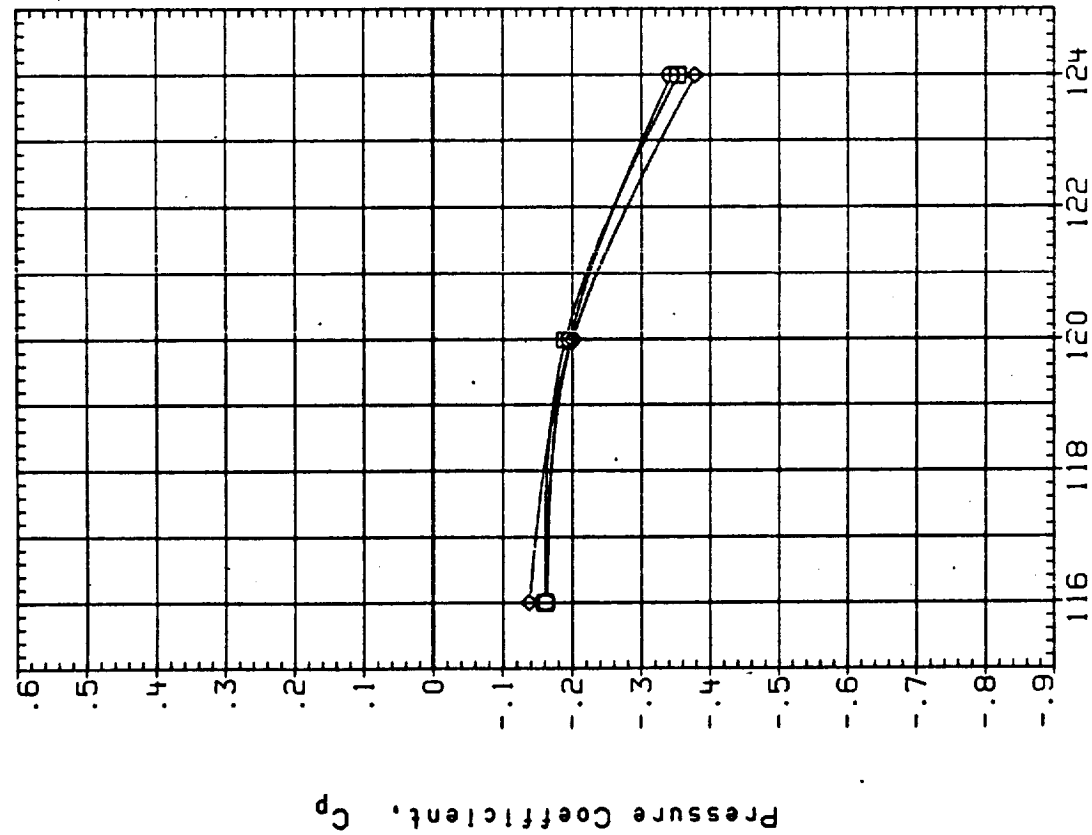


FIGURE 28. PRESSURE DISTRIBUTIONS ON THE ET/SRB TANK CABLE TRAY

(13UG20) 1A190A, ET/SRB CABLE TRAY, (W/RAKE) RAMPS ON

SYMBOL
□
◇

BETA
-4.000
.000
4.000

ALPHA
.000

MACH
OB-ELV

PARAMETRIC VALUES
1.250 18-ELV
.000 GAP

10.000
.000

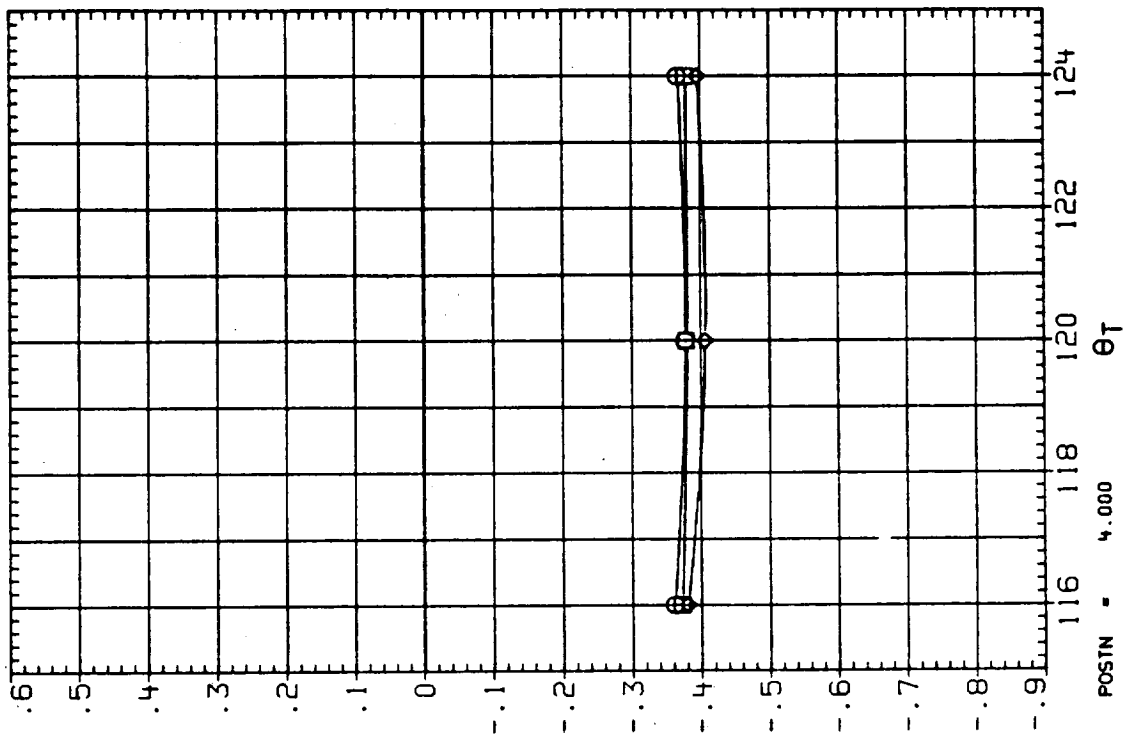
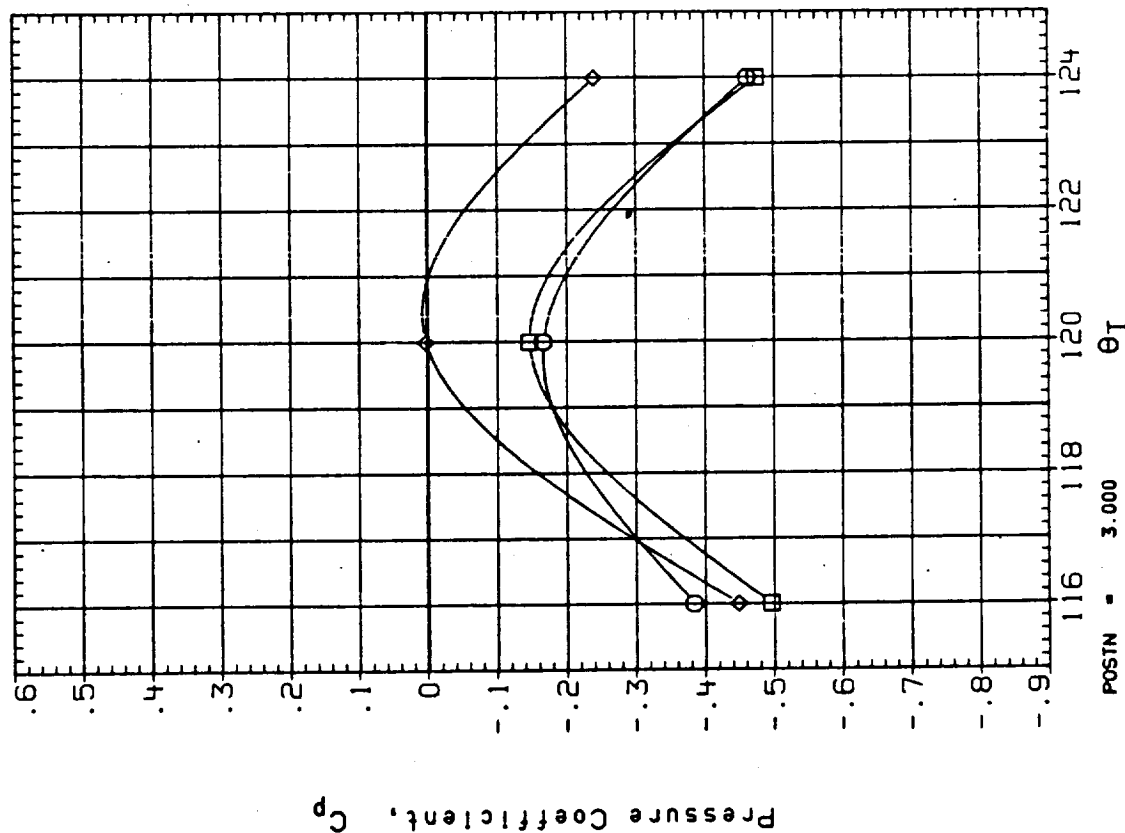


FIGURE 28. PRESSURE DISTRIBUTIONS ON THE ET/SRB TANK CABLE TRAY

(13VG22) 1A190B, ET/SRB CABLE TRAY, RAMPS(2) ON

SYMBOL
 \square
 \diamond

BETA
 -4.000
 .000
 4.000

ALPHA
 .000

MACH
 18-ELV

PARAMETRIC VALUES
 2.000 8.000 600.000
 Q(PSF) 08-ELV -5.000

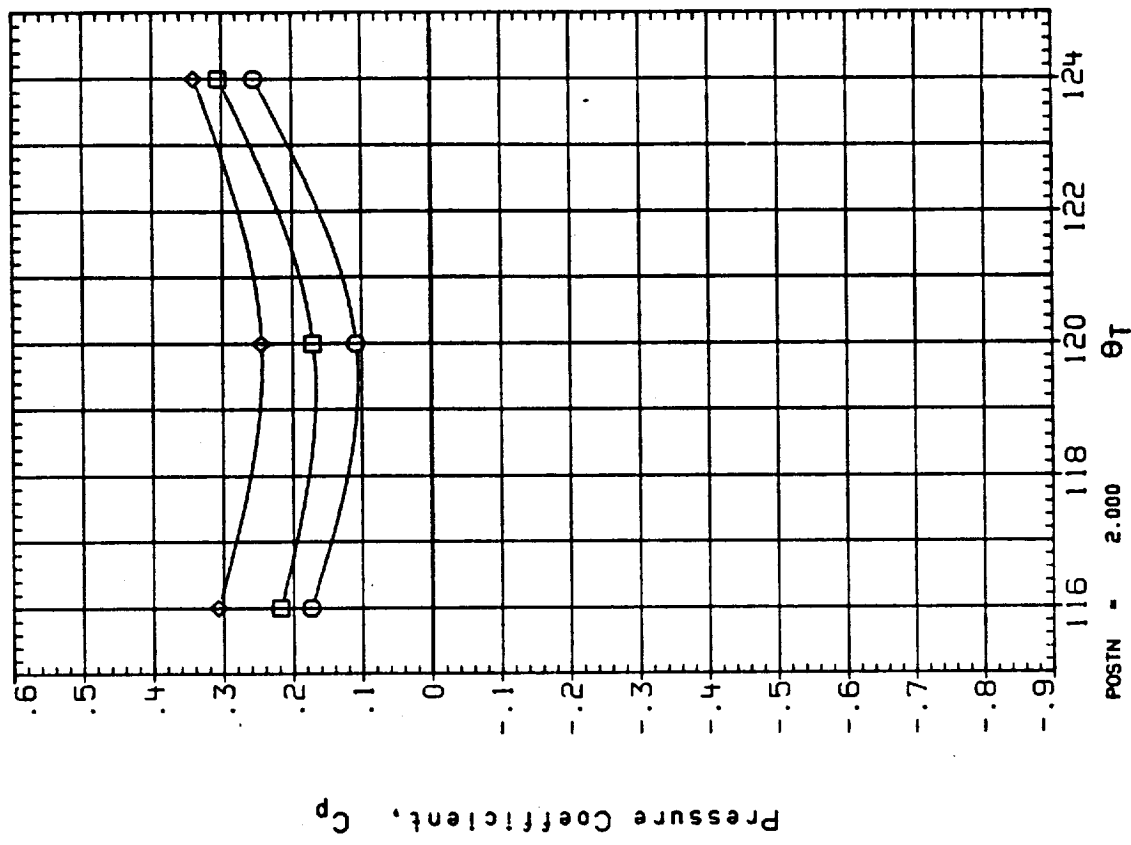
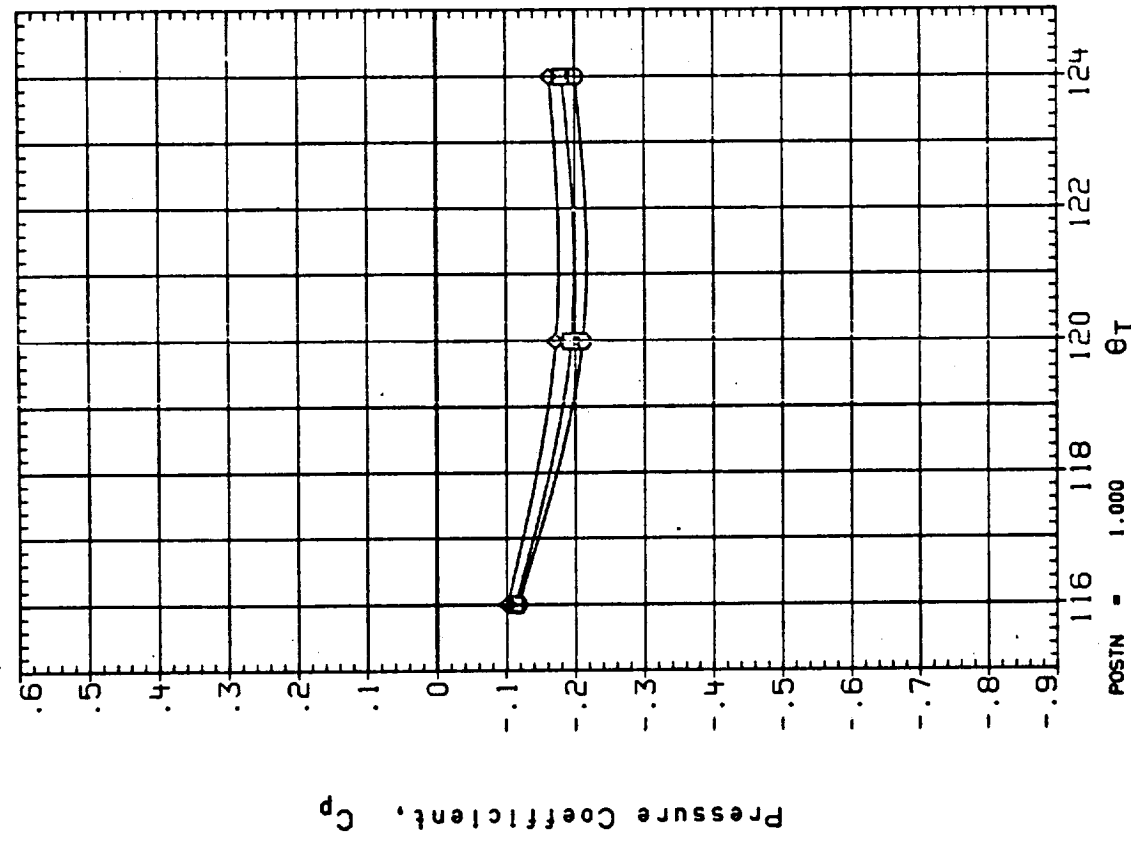


FIGURE 28. PRESSURE DISTRIBUTIONS ON THE ET/SRB TANK CABLE TRAY

(13VG22) 1A190B, ET/SRB CABLE TRAY, RAMP5(2) ON

SYMBOL BETA
 ◊ -4.000
 □ .000
 ○ 4.000

ALPHA
 .000

MACH 1B-ELV
 2.000 8.000 600.000
 Q(PSF) 0B-ELV -5.000

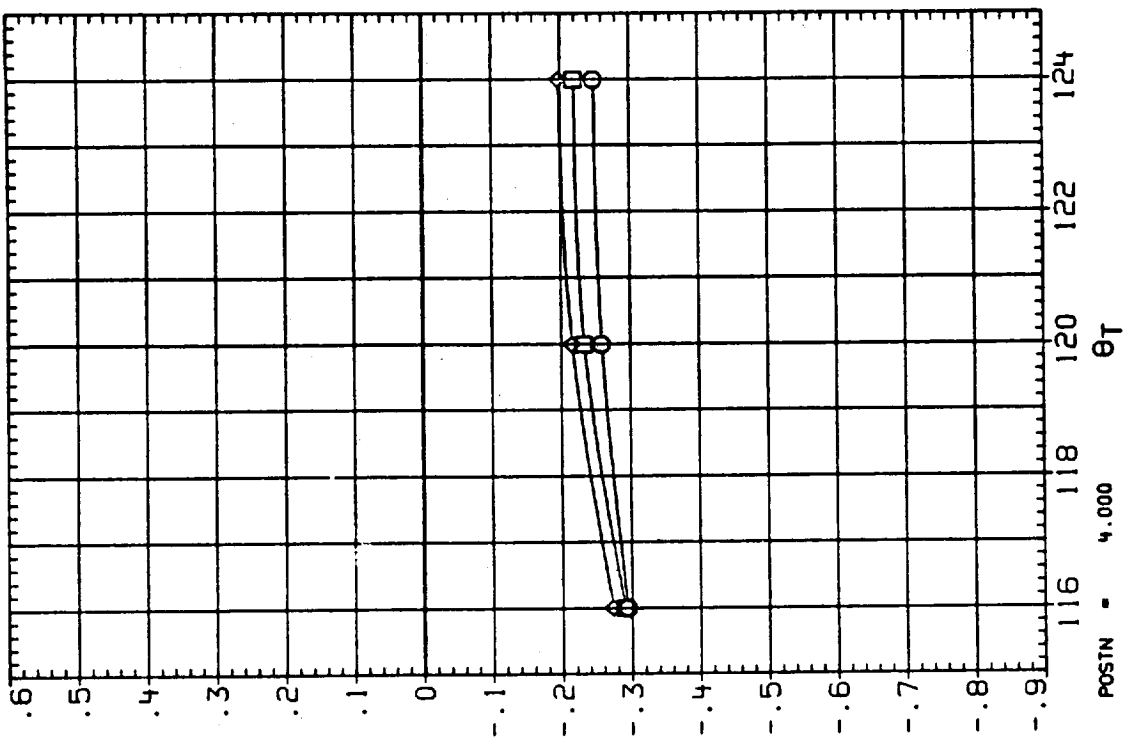
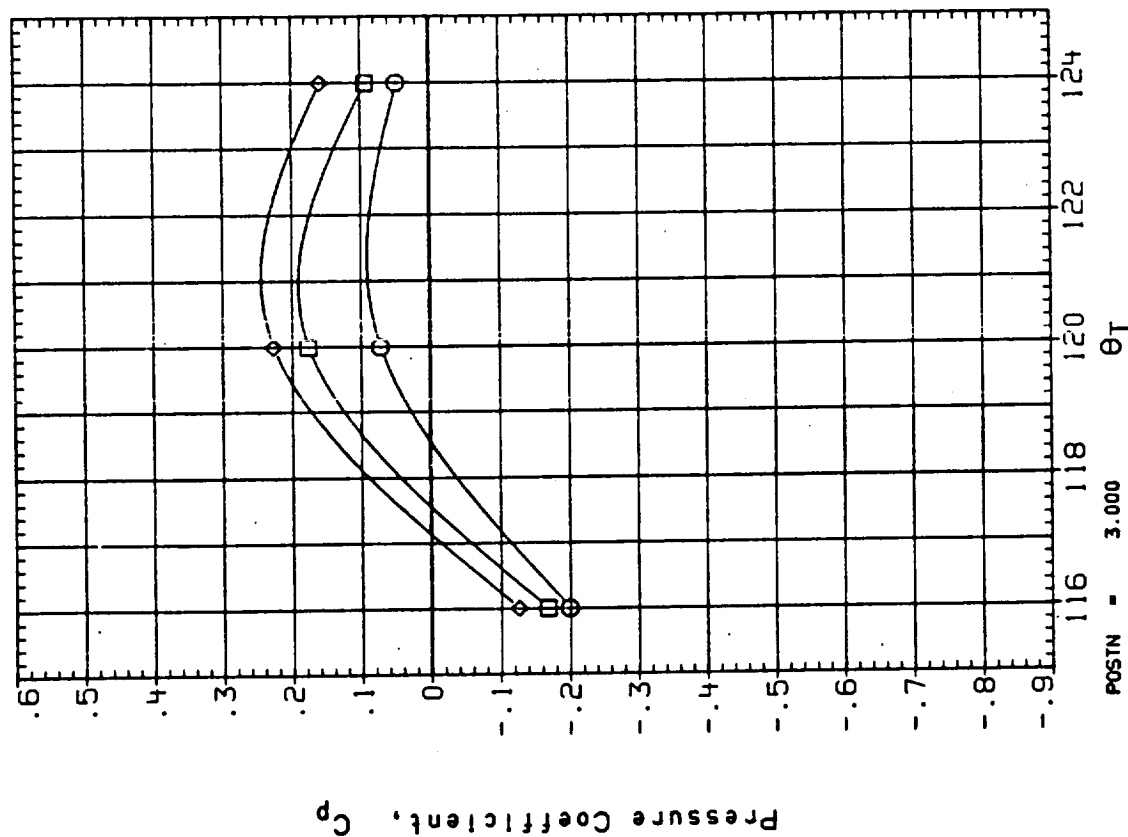


FIGURE 28. PRESSURE DISTRIBUTIONS ON THE ET/SRB TANK CABLE TRAY

(13UE12) IA190A, FWD ATTACH STRUT, (W/BIPOD/RAKE)

SYMBOL	BETA	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES
◇	-4.000	.000	.500	.000	IB-ELV
□	.000	.000	.000	.000	GAP
○	4.000	.000	10.000	.000	

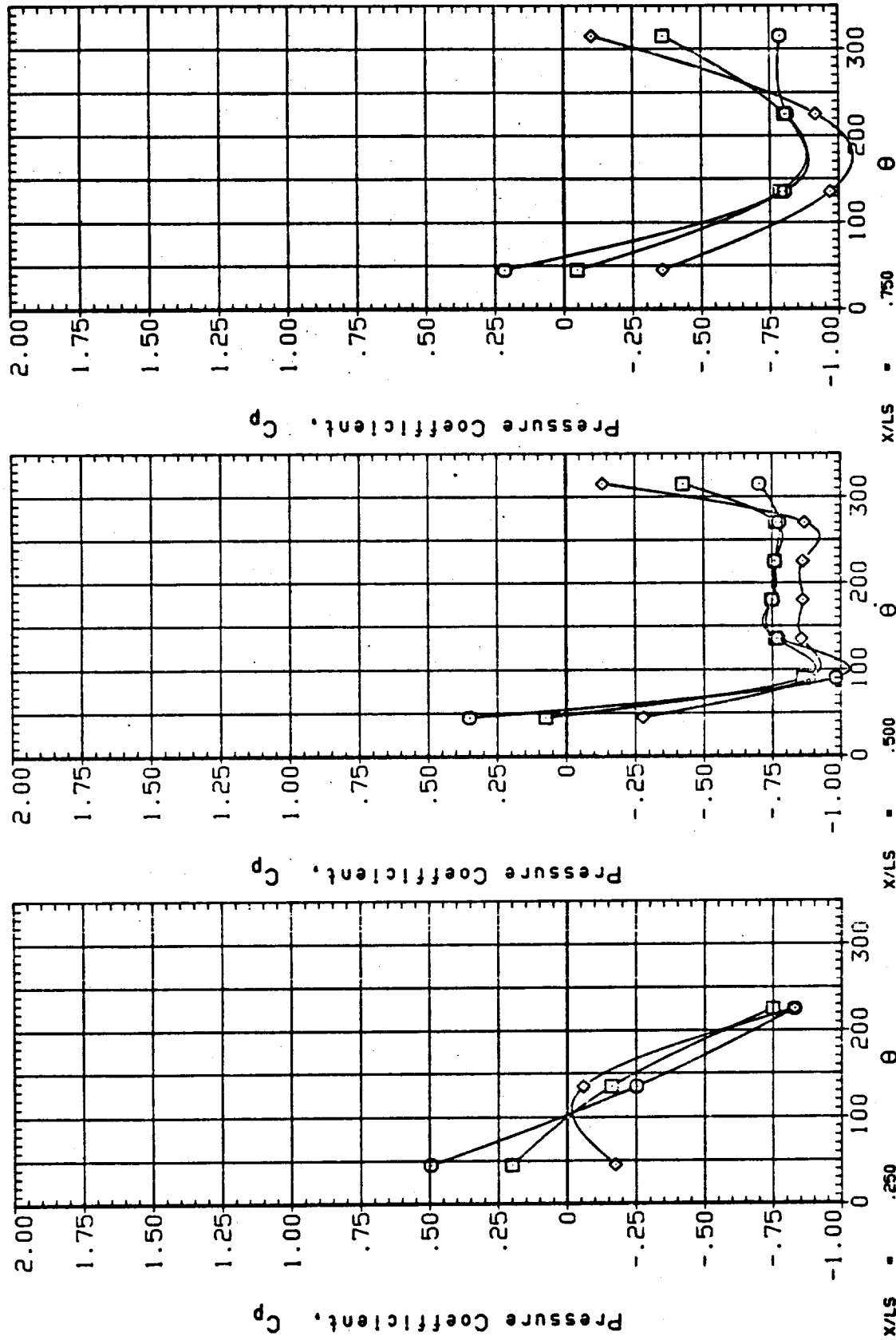


FIGURE 29. PRESSURE DISTRIBUTIONS ON THE FORWARD ATTACH STRUCTURE

(13UE15) IA190A, FWD ATTACH STRUT, (W/BIPOD/RAKE)

PARAMETRIC VALUES
 MACH 1.250 10.000
 OB-ELV .000 GAP

SYMBOL BETA ALPHA
 -4.000 .000
 .000 4.000

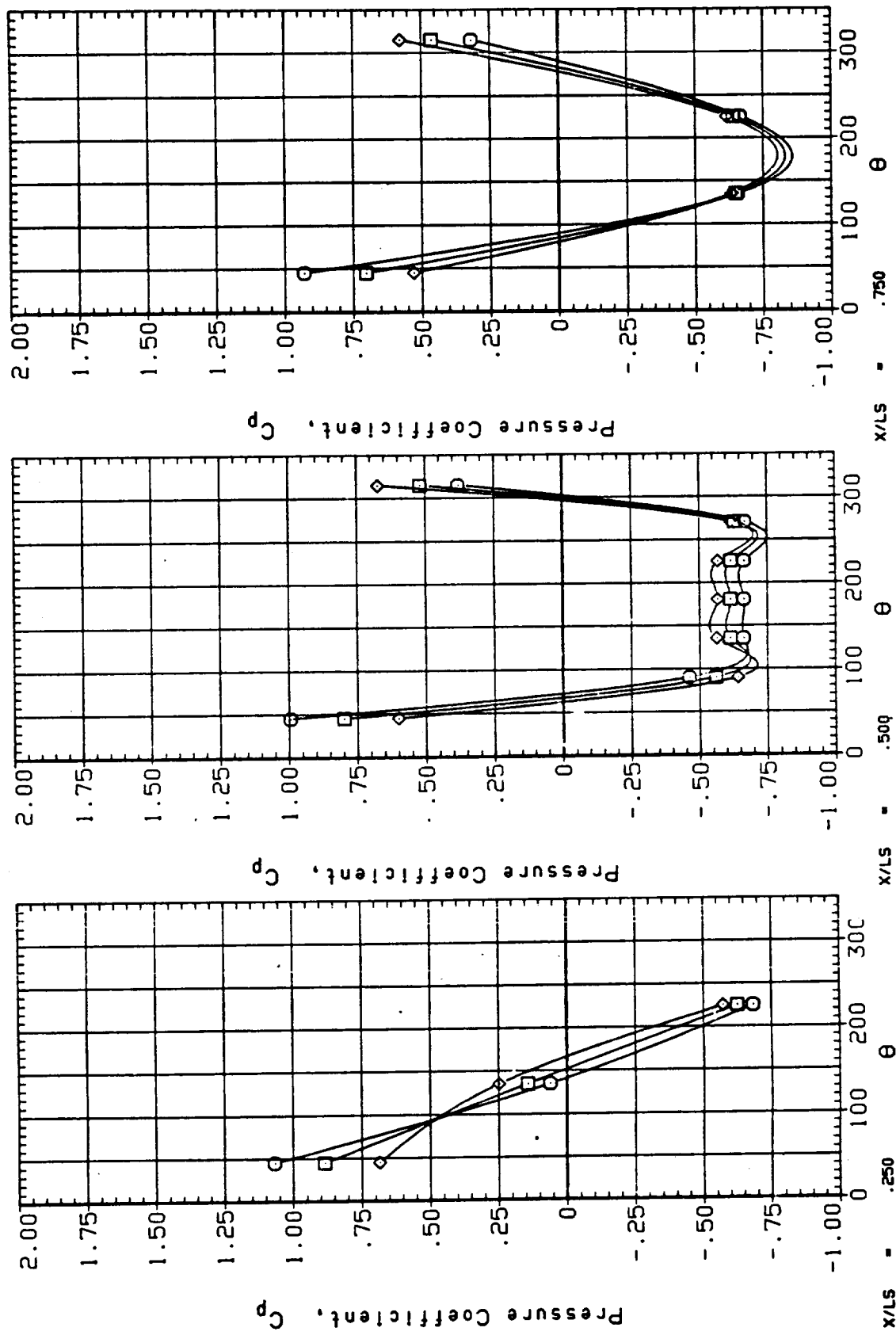


FIGURE 29. PRESSURE DISTRIBUTIONS ON THE FORWARD ATTACH STRUCTURE

(J3VE02) 1A190B, FORWARD ATTACH STRUT, RAMPS(2) ON + RAKE

PARAMETRIC VALUES
MACH 2.000 600.000
18-ELV 8.000 0(PSE)
08-ELV -5.000

BETA
ALPHA .000

SYMBOL
-4.000
0.000
4.000

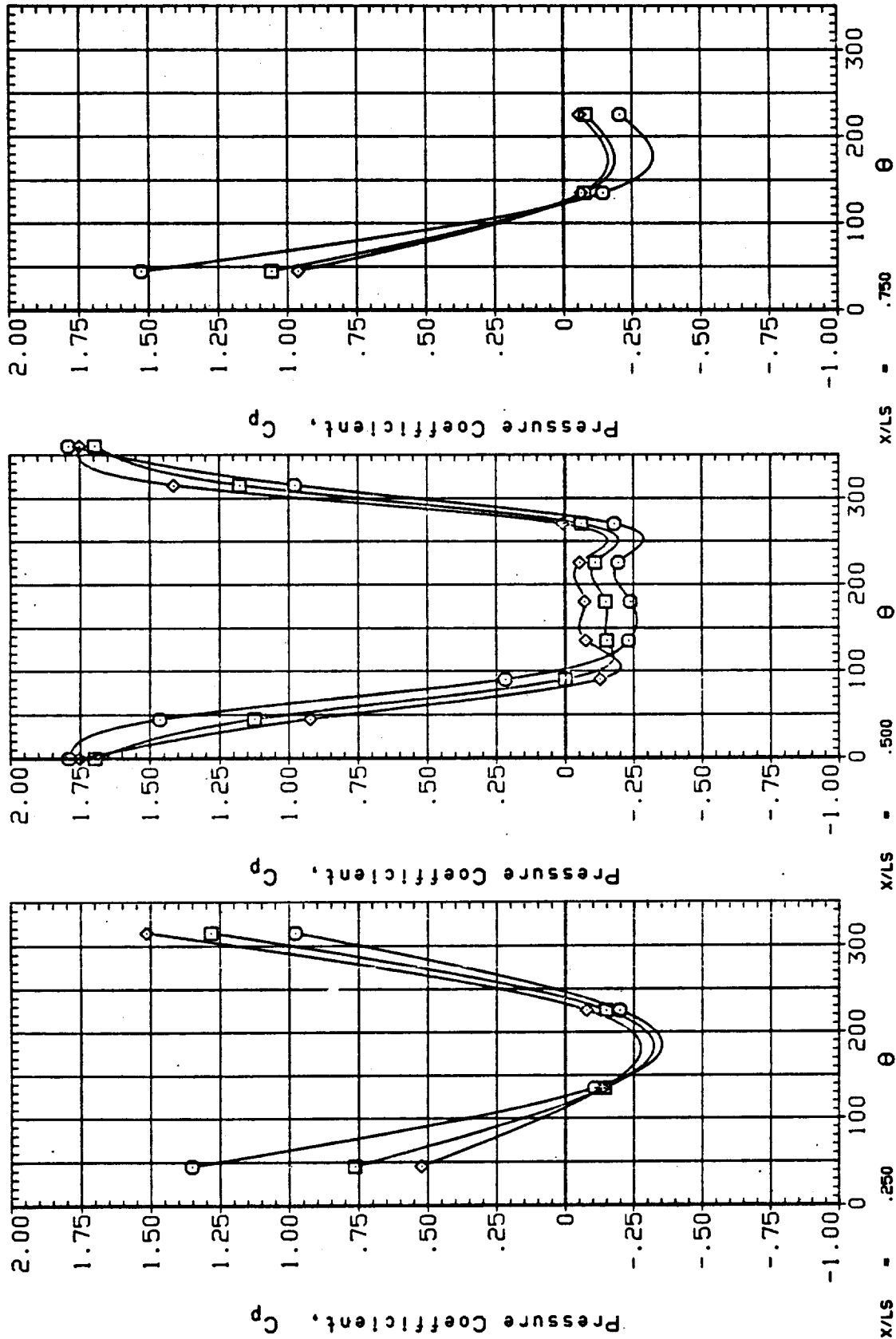


FIGURE 29. PRESSURE DISTRIBUTIONS ON THE FORWARD ATTACH STRUCTURE

(13UH17) 1A190A, PRESSURE RAKE, (W/RAKE) RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	OB-ELV	PARAMETRIC VALUES
○	-4.000	2058.000	.000	.500	9.000	10.000
◇	4.000					.000

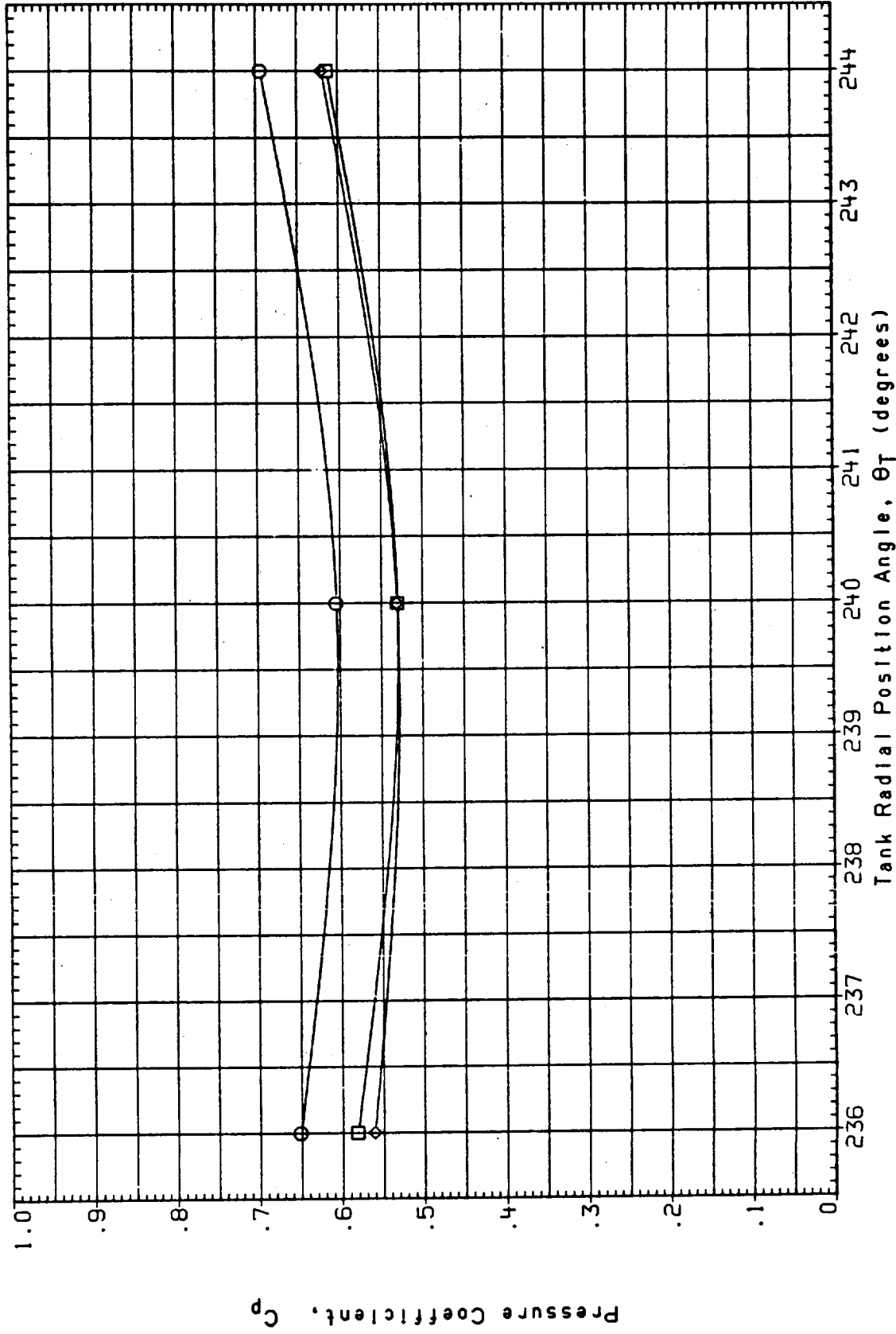


FIGURE 30. RAKE PRESSURE DISTRIBUTIONS

(13UH20) 1A190A, PRESSURE RAKE, (W/RAKE) RAMPS ON

SYMBOL	BETA	XT	ALPHA	MACH	OB-ELV	18-ELV	10.000
○	-4.000	2058.000	.000	1.250	.000	GAP	.000
□							
◇	4.000						

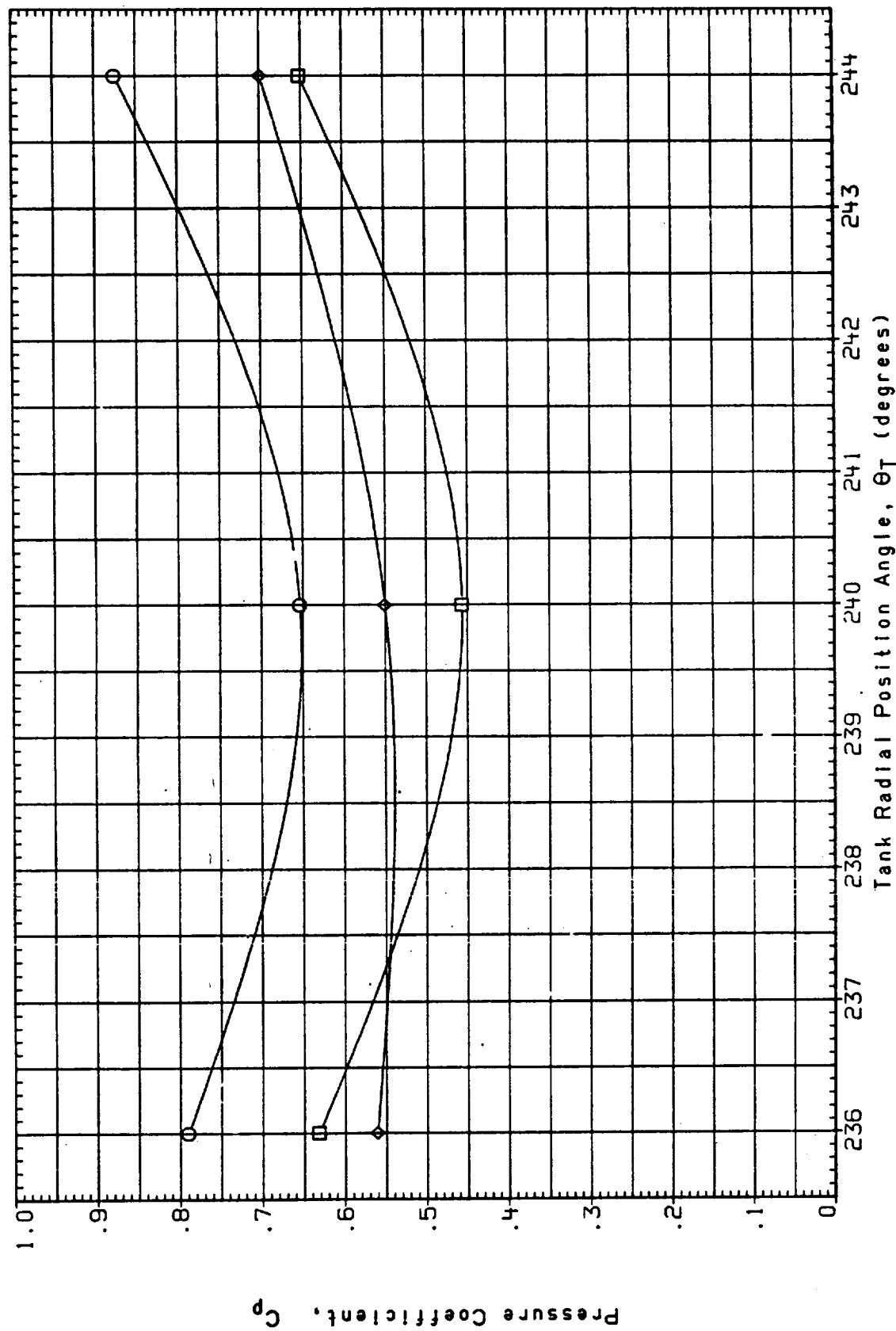


FIGURE 30. RAKE PRESSURE DISTRIBUTIONS

(13VH02) 1A190B, ET/SRB RAKE, RAMPS(2) ON

SYMBOL BETA XT ALPHA
 □ -4.000 2058.000 .000
 ◇ -4.000 .000 4.000

PARAMETRIC VALUES
 MACH 8.000 600.000
 IB-ELV 08-ELV -5.000

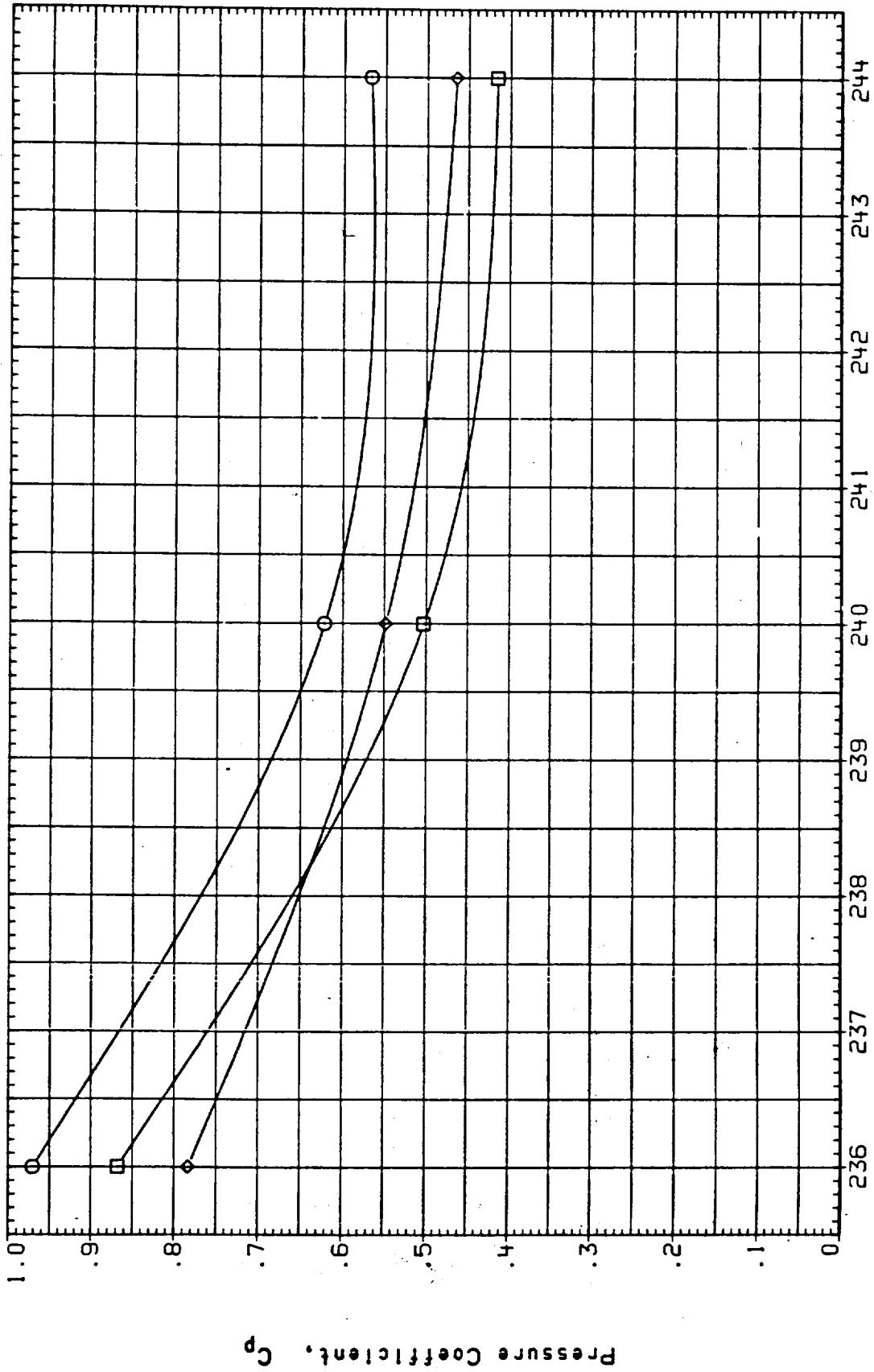


FIGURE 30. RAKE PRESSURE DISTRIBUTIONS

APPENDIX - VOLUME I
 TABULATED SOURCE DATA
 FORCE AND MOMENT DATA - VOLUME I

<u>4TH CHAR.ID</u>	<u>1ST IND. VAR.</u>	<u>2ND IND. VAR.</u>	<u>COEFFICIENTS</u>
A	BETA	ALPHA	MACH CNB1 CYB1 CAB1
B	BETA	ALPHA	MACH CNB2 CYB2 CAB2 CNB3 CYB3 CAB3 CNB4 CYB4 CNB4
C	BETA	ALPHA	MACH CNB5 CYB5 CAB5
D	BETA	ALPHA	MACH CNB6 CYB6 CAB6 CNB7 CYB7 CAB7 CNB8 CYB8 CAB8

PRESSURE DATA - VOLUME II (MICROFICHE ONLY)

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

PAGE 1

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA01) (08 JAN 81)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
LREF = .0000 INCHES YMRP = .0000 IN. YT
BREF = .0000 INCHES ZMRP = .0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 27/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.560	.59900	-.06590	-.02160	.05890
-.030	.160	.59800	-.01810	-.02740	.06430
.000	3.940	.59800	.03010	-.02430	.06310
	GRADIENT	-.00013	.01280	-.00036	.00056

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA02) (08 JAN 81)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
LREF = .0000 INCHES YMRP = .0000 IN. YT
BREF = .0000 INCHES ZMRP = .0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 14/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.080	-3.810	.59900	-.00580	.00420	.06250
-4.030	-.050	.60000	-.01810	-.01640	.06990
-3.920	3.730	.60000	.00760	-.02290	.07920
	GRADIENT	.00013	.00178	-.00359	.00222

RUN NO. 13/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.040	-3.790	.60000	-.06620	-.01800	.05920
.000	-.010	.59900	-.01990	-.02730	.06510
.020	3.740	.59900	.02860	-.02380	.06530
	GRADIENT	-.00013	.01259	-.00077	.00081

RUN NO. 15/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.010	-3.820	.60000	-.07450	-.03330	.05120
3.990	-.070	.60100	-.02120	-.03330	.05510
3.980	3.740	.60000	.05960	-.02610	.05570
	GRADIENT	-.00000	.01775	.00095	.00059

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON (R3UA03) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 24/ 0 RN/L = 3.69 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.110	-4.250	.90100	-.11100	.00400	.01630
-4.090	-3.610	.89900	-.11290	.00050	.01910
-4.020	.120	.90100	-.10980	-.01560	.03470
-3.920	3.830	.90300	-.08040	-.02110	.05310
	GRADIENT	.00035	.00366	-.00317	.00452

RUN NO. 25/ 0 RN/L = 3.67 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.580	.90100	-.16070	-.01510	.02920
-.030	.140	.90400	-.10520	-.02120	.03670
.000	3.910	.90400	-.04360	-.01990	.04540
	GRADIENT	.00040	.01564	-.00064	.00216

RUN NO. 26/ 0 RN/L = 3.65 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.030	-4.370	.90400	-.14320	-.02800	.02410
4.070	-3.570	.90100	-.13020	-.03270	.03100
4.060	.150	.90300	-.06560	-.03090	.03320
4.000	3.840	.90200	.04630	-.02050	.03340
	GRADIENT	-.00007	.02270	.00105	.00088

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

PAGE 3

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA04) (08 JAN 81)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
 OB-ELV = 9.000

RUN NO. 20/ 0 RN/L = 3.23 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.080	-3.630	1.10000	-.10690	-.00280	-.06880
-3.990	.090	1.10000	-.03130	-.00650	-.04830
-3.890	3.850	1.10000	.00710	-.00280	-.01460
	GRADIENT	-.00000	.01523	.00000	.00725

RUN NO. 21/ 0 RN/L = 3.22 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.590	1.10000	-.12930	-.03910	-.05240
-.030	.110	1.10000	-.02780	-.03400	-.03120
.000	3.870	1.09000	.01590	-.01170	-.01310
	GRADIENT	-.00134	.01944	.00368	.00527

RUN NO. 22/ 0 RN/L = 3.21 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.990	-3.630	1.10000	-.10880	-.05320	-.03340
3.980	.080	1.10000	-.00410	-.04770	-.01440
3.960	3.830	1.09000	.09120	-.02800	-.00040
	GRADIENT	-.00134	.02681	.00338	.00442

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
 OB-ELV = .000

RUN NO. 49/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.130	-3.960	1.25000	.04170	-.03550	-.04300
-4.040	.050	1.24000	.07180	-.03600	-.02520
-4.030	3.360	1.25000	.10090	-.03600	-.00730
	GRADIENT	-.00009	.00807	-.00007	.00486

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA05) (08 JAN 81)

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

PAGE 4

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA05) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 50/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.970	1.25000	.01990	-.03360	-.01900
-.020	-.400	1.25000	.07700	-.04030	.00020
.000	3.860	1.25000	.13950	-.03840	.01030
	GRADIENT	-.00000	.01526	-.00058	.00370

RUN NO. 51/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.030	-3.970	1.26000	.00600	-.03630	.00020
4.080	-.250	1.25000	.08430	-.04310	.01390
4.010	3.630	1.25000	.17810	-.02610	.01800
	GRADIENT	-.00131	.02266	.00136	.00233

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA06) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 52/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.130	-3.970	1.40000	.08410	-.02660	-.02110
-4.050	-.250	1.40000	.10880	-.02570	-.00890
-4.000	3.850	1.40000	.13890	-.02970	.00890
	GRADIENT	.00000	.00701	-.00041	.00384

RUN NO. 53/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.970	1.40000	.06160	-.03510	.00260
-.030	-.500	1.40000	.11490	-.04430	.01770
-.010	3.750	1.40000	.18030	-.04430	.02500
	GRADIENT	-.00000	.01538	-.00115	.00286

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3JUA06) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 54/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.020	-3.950	1.40000	.02790	-.03830	.01460
4.080	-.180	1.40000	.10540	-.03810	.03000
4.010	3.620	1.40000	.18300	-.03230	.02690
	GRADIENT	-.00000	.02049	.00079	.00162

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF

(R3JUA07) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 36/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.080	-3.640	.60100	-.00240	.02940	.06510
-4.020	.100	.60000	-.01190	.00370	.07030
-3.920	3.820	.59900	.00450	-.00070	.07960
	GRADIENT	-.00027	.00092	-.00404	.00194

RUN NO. 37/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.600	.60000	-.05550	.00170	.05910
-.030	.140	.60000	-.01720	-.00850	.06440
.010	3.900	.59900	.02640	-.03170	.06510
	GRADIENT	-.00013	.01092	-.00445	.00080

RUN NO. 38/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.070	-3.570	.59800	-.07480	-.03350	.04760
4.080	.050	.60000	.00330	-.07440	.05820
4.000	3.890	.59900	.14410	-.12090	.07130
	GRADIENT	.00013	.02942	-.01172	.00318

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF

(R3UA08) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

MACH =
OB-ELV =

.900 IB-ELV = 10.000
9.000

PARAMETRIC DATA

RUN NO. 33/ 0 RN/L = 3.64 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.080	-3.650	.90100	-.09330	-.00110	.02000
-4.020	.090	.90100	-.09560	-.02380	.03270
-3.930	3.810	.90000	-.06740	-.03110	.05230
	GRADIENT	-.00013	.00347	-.00402	.00433

RUN NO. 34/ 0 RN/L = 3.63 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.590	.90300	-.14680	-.01890	.02590
-.030	.180	.90200	-.09300	-.03470	.03680
.010	3.840	.90400	-.01550	-.06010	.04400
	GRADIENT	.00013	.01765	-.00554	.00244

RUN NO. 35/ 0 RN/L = 3.62 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.000	-3.610	.90400	-.12170	-.05520	.02280
3.970	.140	.90200	-.00790	-.10200	.03990
3.960	3.790	.90200	.14520	-.16140	.05450
	GRADIENT	-.00027	.03604	-.01434	.00429

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF

(R3UA09) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

MACH =
OB-ELV =

1.100 IB-ELV = 10.000
9.000

PARAMETRIC DATA

RUN NO. 30/ 0 RN/L = 3.24 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.080	-3.620	1.10000	-.07780	-.02910	-.06970
-4.010	.060	1.10000	-.03410	-.03750	-.05090
-3.920	3.830	1.10000	-.00470	-.06200	-.01970
	GRADIENT	.00000	.00980	-.00442	.00672

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF (R3UA09) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 31/ 0 RN/L = 3.22 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.550	1.10000	-.12230	-.05470	-.06430
-.030	.220	1.10000	-.05660	-.06770	-.04100
.000	3.730	1.10000	-.01710	-.10480	-.02200
	GRADIENT	-.00000	.01449	-.00684	.00581

RUN NO. 32/ 0 RN/L = 3.21 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.990	-3.680	1.10000	-.14410	-.09260	-.03700
3.970	.100	1.10000	-.01330	-.14890	-.02210
3.970	3.810	1.10000	.11460	-.19700	-.00030
	GRADIENT	-.00000	.03454	-.01394	.00490

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF (R3UA10) (08 JAN 81)

RUN NO. 45/ 0 RN/L = 3.02 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.140	-3.590	1.25000	.01210	-.01260	-.04180
-4.040	.140	1.25000	.02650	-.01810	-.02670
-4.000	3.850	1.24000	.05370	-.02250	-.00930
	GRADIENT	-.00134	.00559	-.00133	.00437

RUN NO. 46/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.610	1.25000	-.02690	-.04520	-.02410
-.030	.110	1.25000	.02290	-.06420	-.00510
.000	3.890	1.25000	.06770	-.09560	.00060
	GRADIENT	.00000	.01261	-.00672	.00329

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF (R3UA10) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 47/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.070	-3.600	1.25000	-.01950	-.09960	-.00430
4.060	.150	1.25000	.05930	-.14870	.01260
4.020	3.830	1.25000	.17330	-.20970	.02760
	GRADIENT	.00000	.02593	-.01481	.00429

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS OFF

(R3UA11) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 42/ 0 RN/L = 2.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.120	-3.630	1.40000	.03220	.00190	-.02100
-4.020	.110	1.40000	.04820	-.00490	-.01000
-3.930	3.870	1.40000	.08220	-.01640	.00880
	GRADIENT	.00000	.00667	-.00244	.00397

RUN NO. 43/ 0 RN/L = 2.90 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.540	1.41000	.01580	-.03210	-.00010
-.030	.080	1.40000	.06950	-.04800	.01620
.000	3.850	1.40000	.12390	-.07170	.02210
	GRADIENT	-.00134	.01463	-.00536	.00299

RUN NO. 44/ 0 RN/L = 2.91 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.040	-3.590	1.40000	.01830	-.07930	.01550
4.060	.160	1.40000	.10970	-.12120	.03240
4.010	3.820	1.40000	.18640	-.16490	.04010
	GRADIENT	-.00000	.02269	-.01155	.00332

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA76) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 0/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.140	-3.960	.60000	-.00060	.00210	.06060
-4.050	-.130	.60000	-.02040	-.01770	.06880
-4.000	3.850	.59900	.00290	-.02200	.07720
	GRADIENT	-.00013	.00048	-.00307	.00213

RUN NO. 0/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.990	.59900	-.07270	-.01940	.05900
-.010	-.090	.60000	-.03150	-.02480	.06410
.000	3.710	.60000	.01640	-.02310	.06390
	GRADIENT	.00013	.01157	-.00048	.00064

RUN NO. 0/ 0 RN/L = 4.50 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.080	-.240	.59900	-.04100	-.03580	.05440
4.010	3.650	.60000	.04150	-.02620	.05250
	GRADIENT	.00026	.02121	.00247	-.00049

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 59/ 0 RN/L = 3.65 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.140	-4.010	.90200	-.11310	-.00080	.02240
-4.050	-.210	.90100	-.11900	-.01530	.03520
-4.030	3.650	.90400	-.09000	-.02330	.05380
	GRADIENT	.00026	.00303	-.00294	.00410

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA77) (08 JAN 81)

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

PAGE 10

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA77) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 60/ 0 RN/L = 3.63 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.990	.90300	-.17050	-.01390	.03040
-.010	-.130	.90200	-.11350	-.02130	.04130
.000	3.660	.90200	-.05130	-.02220	.04720
	GRADIENT	-.00013	.01558	-.00109	.00220

RUN NO. 61/ 0 RN/L = 3.65 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.040	-4.010	.90500	-.15100	-.03010	.02920
4.080	-.140	.90300	-.07740	-.03490	.03470
4.010	3.620	.90300	.03900	-.02080	.03300
	GRADIENT	-.00026	.02487	.00121	.00050

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA78) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 0/ 0 RN/L = 3.20 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.120	-4.000	1.10000	-.11350	-.00720	-.07350
-4.050	-.160	1.10000	-.04080	-.01140	-.05430
-4.030	3.560	1.10000	.00640	-.01110	-.02050
	GRADIENT	-.00000	.01588	-.00052	.00700

RUN NO. 0/ 0 RN/L = 2.13 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
.000	-.230	1.11000	-.01440	-.03940	-.03260
.000	3.660	1.10000	.03560	-.03090	-.01440
	GRADIENT	-.00257	.01285	.00219	.00468

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA78) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

XMRP = .0171 SQ. IN.
YMRP = .0000 INCHES
ZMRP = .0000 INCHES
SCALE = .0300

MACH =
OB-ELV =

1.100 IB-ELV = 10.000
.000

PARAMETRIC DATA

RUN NO. 0/ 0 RN/L = 3.20 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.030	-4.060	1.10000	-.11100	-.05890	-.03730
4.080	-.160	1.10000	.00410	-.05600	-.01340
4.010	3.620	1.09000	.10730	-.03540	-.00510
	GRADIENT	-.00130	.02843	.00305	.00420

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UA79) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

XMRP = .0171 SQ. IN.
YMRP = .0000 INCHES
ZMRP = .0000 INCHES
SCALE = .0300

MACH =
OB-ELV =

1.250 IB-ELV = 10.000
.000

PARAMETRIC DATA

RUN NO. 65/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.120	-4.050	1.25000	.04300	-.03550	-.04080
-4.050	-.210	1.23000	.06500	-.03650	-.02740
-4.030	3.610	1.25000	.10170	-.03560	-.00560
	GRADIENT	-.00000	.00766	-.00001	.00459

RUN NO. 66/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.980	1.26000	.01580	-.03300	-.01820
.000	-.210	1.26000	.07290	-.03840	.00190
.000	3.650	1.25000	.13320	-.03830	.01050
	GRADIENT	-.00132	.01539	-.00069	.00376

RUN NO. 67/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.030	-4.030	1.25000	.00430	-.03760	-.00010
4.080	-.200	1.25000	.08430	-.04310	.01440
4.010	3.600	1.25000	.17430	-.02560	.01830
	GRADIENT	.00000	.02228	.00157	.00241

IA190A, L02 TK CBL TRY + G02 PRESS LN, RAMPS ON

(R3UBA80) (08 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 62/ 0 RN/L = 2.95 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-4.130	-3.970	1.40000	.07840	-.02990	-.02360
-4.050	-.230	1.40000	.10190	-.02730	-.01070
-4.030	3.650	1.40000	.13180	-.03220	.00640
	GRADIENT	.00000	.00701	-.00031	.00394

RUN NO. 63/ 0 RN/L = 2.91 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.060	-3.980	1.40000	.05910	-.03560	.00170
-.010	-.190	1.40000	.11270	-.04670	.01720
.000	3.660	1.40000	.17120	-.04560	.02370
	GRADIENT	.00000	.01467	-.00130	.00288

RUN NO. 64/ 0 RN/L = 2.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
4.030	-4.040	1.40000	.02540	-.03840	.01240
4.070	-.180	1.40000	.10200	-.03950	.02880
4.010	3.570	1.39000	.17930	-.03450	.02490
	GRADIENT	-.00131	.02022	.00051	.00166

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 27/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CNB3	CYB3	CNB4	CYB4	CAB4
-.060	-3.560	.59900	.12880	-.05680	.12870	-.02160	-.00730	.01220	.06650
-.030	.160	.59800	.08620	-.05560	.11700	-.02520	-.00740	.01400	.06770
.000	3.940	.59800	.08780	-.02320	.09680	-.00810	-.02830	.02260	.09050
	GRADIENT	-.00013	-.00545	.00449	-.00426	.00181	-.00281	.00139	.00321

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UB01) (27 MAR 80)

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

PAGE 13

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UB02) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
 DB-ELV = 9.000

RUN NO. 14/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	BETA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
BETA	-4.080	-3.810	.59900	.06720	.11690	.09600	.01050	.14930	.12200	.05810	.00860	.03630
	-4.030	-0.050	.60000	.08420	.09600	.08890	.00340	.11980	.12430	.03160	.01030	.05290
	-3.920	3.730	.60000	.11290	.05850	.09600	.00730	.09920	.13250	.00940	.01210	.07170
GRADIENT			.00013	.00606	.00775	.00000	.00236	.00664	.00139	.00646	.00046	.00470

RUN NO. 13/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	BETA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
BETA	-0.040	-3.790	.60000	.12260	.05840	.07360	.12240	.02330	.08700	.00700	.00520	.06440
	.000	-0.010	.59900	.07820	.05720	.08490	.10880	.02860	.08720	.00300	.00690	.06350
	.020	3.740	.59900	.08190	.02660	.08090	.09080	.00990	.11310	.02610	.01900	.08450
GRADIENT			.00013	.00541	.00422	.00097	.00420	.00178	.00346	.00253	.00183	.00267

RUN NO. 15/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	BETA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
BETA	4.010	-3.820	.60000	.03340	.05070	.07350	.06710	.05620	.08100	.02290	.01400	.05840
	3.990	-0.070	.60100	.03130	.03710	.07600	.04110	.04940	.09930	.02900	.01400	.06350
	3.980	3.740	.60000	.03890	.01330	.08330	.03510	.03580	.10500	.02310	.00880	.07090
GRADIENT			.00000	.00073	.00495	.00130	.00423	.00270	.00317	.00002	.00069	.00165

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
 DB-ELV = 9.000

RUN NO. 24/ 0 RN/L = 3.69 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	BETA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
BETA	-4.110	-4.250	.90100	.22750	.11000	.08890	.16450	.17720	.08160	.03800	.00010	.00810
	-4.090	-3.610	.89900	.20670	.10870	.08700	.16020	.18100	.09460	.03400	.00170	.01020
	-4.020	.120	.90100	.14060	.12430	.09660	.14050	.15670	.11710	.02990	.01390	.02680
	-3.920	3.830	.90300	.18030	.07800	.05560	.13300	.12580	.14420	.01160	.01390	.05160
GRADIENT			.00035	.00638	.00321	.00397	.00338	.00666	.00729	.00299	.00186	.00534

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UB03) (27 MAR 80)

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UB03) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH =
 OB-ELV = 10.000
 .900 IB-ELV = 9.000

PARAMETRIC DATA

RUN NO. 25/ 0 RN/L = 3.67 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
- .060	-3.580	.90100	.28470	-.03500	.12440	.20540	-.02450	.05530	-.05760	.00840	.05090
- .030	.140	.90400	.23920	-.02010	.10060	.20060	-.03640	.07870	-.01500	.00860	.04640
.000	3.910	.90400	.23900	.01370	.10400	.15910	-.01790	.11440	-.03600	.02760	.06710
GRADIENT		.00040	-.00609	.00651	-.00272	-.00619	.00089	.00789	.00286	.00257	.00217

RUN NO. 26/ 0 RN/L = 3.65 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
4.030	-4.370	.90400	.20480	-.03550	.12310	.19520	-.06530	.02520	-.01820	-.01570	.02280
4.070	-3.570	.90100	.19370	-.02900	.11870	.19570	-.06890	.03350	-.01630	.01400	.02500
4.060	.150	.90300	.16420	-.00380	.10710	.20710	-.06710	.06790	-.01440	.00880	.03310
4.000	3.840	.90200	.16220	.00970	.10140	.16570	-.05710	.07640	-.00250	-.01220	.05380
GRADIENT		-.00007	-.00523	.00556	-.00261	-.00305	.00110	.00642	.00176	.00048	.00365

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UB04) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH =
 OB-ELV = 10.000
 1.100 IB-ELV = 9.000

PARAMETRIC DATA

RUN NO. 20/ 0 RN/L = 3.23 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-4.080	-3.630	1.10000	-.00480	-.11050	.22670	.12640	-.16040	.15120	.17260	.02810	-.02480
-3.990	.090	1.10000	.00470	-.09850	.22080	.02920	-.16260	.14070	.14980	.02470	.00860
-3.890	3.850	1.10000	.09180	-.05210	.20020	.05330	-.14220	.09970	.10620	.00720	.01930
GRADIENT		-.00000	.01293	.00782	-.00355	-.00974	.00244	-.00689	-.00888	-.00280	.00589

RUN NO. 21/ 0 RN/L = 3.22 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
- .060	-3.590	1.10000	.10280	.01440	.16930	.18810	-.02130	.11790	.09320	.04200	.00260
- .030	.110	1.10000	.15870	.06430	.15660	.13260	-.03360	.10820	.07860	.05070	.02760
.000	3.870	1.09000	.20380	.05630	.15880	.09100	-.01500	.10950	.05830	.05080	.05480
GRADIENT		-.00134	.01353	.00560	-.00140	-.01301	.00086	-.00112	-.00468	.00118	.00700

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UBO4) (27 MAR 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH =
OB-ELV =

1.100 IB-ELV = 10.000
9.000

PARAMETRIC DATA

RUN NO. 22/ 0 RN/L = 3.21 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
3.990	-3.630	1.10000	.04250	.00880	.13900	.15210	-.06250	.11420	.11830	-.01890	.03280
3.980	.080	1.10000	.08140	.01770	.12250	.11290	-.08180	.09280	.11850	-.01540	.03910
3.960	3.830	1.09000	.16100	.05930	.14850	.06940	-.08210	.07670	.09640	-.02600	.06540
	GRADIENT	-.00134	.01589	.00678	.00128	-.01109	-.00262	-.00503	-.00294	-.00096	.00437

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UBO5) (27 MAR 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH =
OB-ELV =

1.250 IB-ELV = 10.000
.000

PARAMETRIC DATA

RUN NO. 49/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-4.130	-3.960	1.25000	-.09670	-.01080	.23290	.13000	-.14300	.11630	.18800	.00040	.05090
-4.040	.050	1.24000	-.10650	-.01600	.25000	.05700	-.18290	.10950	.17380	.00380	.06660
-4.030	3.360	1.25000	-.01900	-.04590	.23090	.08280	-.15480	.04880	.13920	.00030	.07480
	GRADIENT	-.00009	.01016	-.00467	-.00012	-.00686	-.00190	-.00896	-.00656	.00002	.00329

RUN NO. 50/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-.060	-3.970	1.25000	.02760	.15660	.16440	.13960	.00070	.10510	.10660	.02110	.09160
-.020	-.400	1.25000	.09690	.18930	.17970	.10410	-.02170	.07780	.08380	.03310	.11220
.000	3.860	1.25000	.17040	.18810	.20110	.08270	-.02690	.02410	.05950	.04000	.11430
	GRADIENT	-.00000	.01821	.00389	.00470	-.00720	-.00345	-.01042	-.00601	.00239	.00282

RUN NO. 51/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
4.030	-3.970	1.26000	.01610	.13760	.09060	.06050	-.02190	.10720	.08110	-.01540	.09780
4.080	-.250	1.25000	.08940	.16540	.12030	.05690	-.06120	.06350	.08320	-.01720	.09890
4.010	3.630	1.25000	.13550	.18940	.17300	.07880	-.08490	.03240	.04910	-.01550	.10210
	GRADIENT	-.00131	.01568	.00681	.01086	.00243	-.00827	-.00983	-.00424	-.00001	.00057

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UB06) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

MACH = 1.400
 OB-ELV = .000
 IB-ELV = 10.000

PARAMETRIC DATA

RUN NO. 52/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-4.130	-3.970	1.40000	.08030	.04790	.20410	.07160	-.16930	.07860	.16450	.00030	.08260
-4.050	-.250	1.40000	-.05740	.03970	.20330	.11640	-.16060	.06220	.15240	.01570	.07250
-4.000	3.850	1.40000	.01460	.06020	.20040	.19410	-.09810	.03840	.11740	.01050	.04730
	GRADIENT	.00000	.01223	.00163	-.00048	.01572	.00921	-.00515	-.00607	.00126	-.00454

RUN NO. 53/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-.060	-3.970	1.40000	.02300	.19750	.15470	.01510	-.06220	.09690	.06100	.03090	.10140
-.030	-.500	1.40000	.06460	.22110	.18100	.01900	-.08060	.09330	.02070	.05640	.10760
-.010	3.750	1.40000	.09140	.20630	.18120	.12220	-.04330	.04330	.00190	.03930	.07620
	GRADIENT	-.00000	.00877	.00097	.00331	.01426	.00204	-.00712	-.00754	.00090	-.00342

RUN NO. 54/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
4.020	-3.950	1.40000	.03050	.20060	.10490	.00330	-.05210	.11120	.03430	.01030	.07200
4.080	-.180	1.40000	.07210	.23100	.12560	.09270	-.07340	.08560	.04250	.00180	.06180
4.010	3.620	1.40000	.11020	.23140	.15230	.06560	-.07190	.09200	.02490	-.01700	.08130
	GRADIENT	-.00000	.01053	.00406	.00626	.00821	-.00261	-.00253	-.00125	-.00361	.00123

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

MACH = .600
 OB-ELV = 9.000
 IB-ELV = 10.000

PARAMETRIC DATA

RUN NO. 36/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-4.080	-3.640	.60100	.08600	-.11590	.09170	.11210	-.15960	.12140	.12220	-.02400	.04190
-4.020	.100	.60000	.08620	-.08590	.08620	.10270	-.13130	.12210	.10050	-.02590	.05670
-3.920	3.820	.59900	.08370	-.03160	.09310	.08860	-.09380	.13400	.07400	-.02070	.07550
	GRADIENT	-.00027	-.00031	.01130	.00019	-.00315	.00882	.00169	-.00646	.00044	.00450

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP OFF

(R3UB07) (27 MAR 80)

IA190A, LH2 TK C TRY + G02 P + L02 AG LN.RMP OFF

(R3UB08) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ.IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = .900 IB-ELV = 10.000
 OB-ELV = 9.000

PARAMETRIC DATA

RUN NO. 35/ 0 RN/L = 3.62 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
4.000	-3.610	.90400	.14260	.00790	.11540	.20110	-.05850	.05070	.01620	-.02240	.01960
3.970	.140	.90200	.12340	.02810	.10130	.21310	-.05010	.08260	.01990	-.01210	.02890
3.960	3.790	.90200	.11560	.04840	.10120	.20530	-.05010	.08640	.03800	-.01900	.04340
	GRADIENT	-.00027	-.00366	.00547	-.00193	.00058	.00114	.00484	.00294	.00047	.00321

IA190A, LH2 TK C TRY + G02 P + L02 AG LN.RMP OFF

(R3UB09) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ.IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 1.100 IB-ELV = 10.000
 OB-ELV = 9.000

PARAMETRIC DATA

RUN NO. 30/ 0 RN/L = 3.24 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-4.080	-3.620	1.10000	.02800	-.10820	.22520	.12600	-.14280	.14800	.15560	.04020	-.00390
-4.010	.060	1.10000	.00070	-.08150	.21610	.07680	-.16220	.13680	.13350	.03850	.02520
-3.920	3.830	1.10000	.04660	-.02170	.19740	.08080	-.11750	.09270	.11390	.00890	.03570
	GRADIENT	.00000	.00254	.01163	-.00374	-.00604	.00343	-.00744	-.00560	-.00422	.00531

RUN NO. 31/ 0 RN/L = 3.22 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-.060	-3.550	1.10000	.09040	.05160	.17020	.12780	.01920	.13880	.04660	.04690	.02030
-.030	.220	1.10000	.12680	.10810	.15570	.10430	-.00290	.12260	.02380	.05910	.05040
.000	3.730	1.10000	.13830	.11500	.15560	.07460	.00710	.10820	.01950	.05730	.07430
	GRADIENT	-.00000	.00662	.00879	-.00203	-.00729	-.00171	-.00420	-.00375	.00145	.00742

RUN NO. 32/ 0 RN/L = 3.21 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
3.990	-3.680	1.10000	.04020	.04100	.13750	.15350	-.03330	.12300	.14850	-.02570	.04390
3.970	.100	1.10000	.06520	.07020	.12620	.16390	-.05730	.10590	.16670	-.02570	.05530
3.970	3.810	1.10000	.08210	.11440	.15080	.13240	-.07960	.06310	.14030	-.03260	.07610
	GRADIENT	-.00000	.00560	.00979	.00176	-.00360	-.00618	-.00799	-.00108	-.00092	.00430

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

(R3UB10) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
 OB-ELV = .000

RUN NO. 45/ 0 RN/L = 3.02 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB2	CNB2	CNB3	CNB3	CNB3	CNB4	CNB4	CNB4	CNB4
-4.140	-3.590	1.25000	-0.08640	-0.08370	.23000	.14040	-.15490	.10620	.17780	.02470	.04680	
-4.040	.140	1.25000	-0.12330	-0.06690	.24850	.08300	-.18770	.09920	.17980	.01950	.05710	
-4.000	3.850	1.24000	-0.02830	-0.03200	.22580	.15490	-.16020	.03860	.17060	-.00310	.06360	
	GRADIENT	-.00134	.00779	-.00111	-.00056	.00193	-.00072	-.00908	-.00097	-.00373	.00226	

RUN NO. 46/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB2	CNB2	CNB3	CNB3	CNB3	CNB4	CNB4	CNB4	CNB4
-0.060	-3.610	1.25000	-0.00480	.10030	.16050	.06070	.02570	.11930	.07010	.04360	.08970	
-0.030	.110	1.25000	.04120	.15680	.18220	.08880	-.00470	.07620	.02710	.05910	.11160	
.000	3.890	1.25000	.06250	.15870	.19810	.08710	-.01320	.03060	.01500	.05910	.11060	
	GRADIENT	.00000	.00896	.00777	.00501	.00351	-.00518	-.01183	-.00734	.00206	.00278	

RUN NO. 47/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB2	CNB2	CNB3	CNB3	CNB3	CNB4	CNB4	CNB4	CNB4
4.070	-3.600	1.25000	-0.02990	.09500	.08470	.10040	-.03370	.11440	.08940	-.00330	.09270	
4.060	.150	1.25000	.01230	.13450	.12640	.15430	-.07610	.06950	.10370	-.00850	.08970	
4.020	3.830	1.25000	-0.00560	.19040	.18170	.15450	-.08290	.03660	.11190	-.02580	.09590	
	GRADIENT	.00000	.00330	.01283	.01305	.00730	-.00664	-.01048	.00303	-.00302	.00043	

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
 OB-ELV = .000

RUN NO. 42/ 0 RN/L = 2.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB2	CNB2	CNB3	CNB3	CNB3	CNB4	CNB4	CNB4	CNB4
-4.120	-3.630	1.40000	-0.10230	-0.02270	.21310	.11870	-.18210	.06700	.14290	.02280	.09240	
-4.020	.110	1.40000	-0.11400	-0.01090	.21300	.17020	-.16310	.06300	.16520	.02460	.07570	
-3.930	3.870	1.40000	-0.04860	.02000	.20690	.20570	-.09110	.04810	.15800	.00030	.05620	
	GRADIENT	.00000	.00717	.00570	-.00083	.01160	.01214	-.00252	.00201	-.00300	-.00483	

IA190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

(R3UB11) (27 MAR 80)

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON (R3UB76) (12 APR 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO.

O/ O

RN/L =

4.50

GRADIENT INTERVAL =

-5.00/ 5.00

BETA
4.080
4.010

ALPHA
-2.240
3.650
GRADIENT

MACH
.59900
.60000
.00026

CNB2
.03650
.03810
.00041

CYB2
.04290
.06660
.00609

CAB2
.08100
.08520
.00108

CNB3
.03710
.02900
-.00208

CYB3
-.04440
-.03070
.00352

CAB3
.10050
.10940
.00229

CNB4
-.03730
-.03320
.00105

CYB4
-.01760
-.01410
.00090

CAB4
.07080
.07990
.00234

MACH = .600 IB-ELV = 10.000
OB-ELV = .000

PARAMETRIC DATA

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO.

59/ O

RN/L =

3.65

GRADIENT INTERVAL =

-5.00/ 5.00

BETA
-4.140
-4.050
-4.030

ALPHA
-4.010
-2.10
3.650
GRADIENT

MACH
.90200
.90100
.90400
.00026

CNB2
.21830
.14130
.19250
-.00332

CYB2
-.02030
-.02940
.00320
.00308

CAB2
.16240
.13470
.13100
-.00409

CNB3
.07270
.07650
.04850
-.00317

CYB3
-.17690
-.15830
-.12900
.00626

CAB3
.08250
.11540
.14140
.00769

CNB4
.03010
.02210
.00380
-.00344

CYB4
-.00340
-.01730
-.01720
-.00180

CAB4
-.00320
.01550
.04120
.00580

MACH = .900 IB-ELV = 10.000
OB-ELV = .000

PARAMETRIC DATA

BETA
-.060
-.010
.000

ALPHA
-3.990
-.130
3.660
GRADIENT

MACH
.90300
.90200
.90200
-.00013

CNB2
.29260
.24830
.24420
-.00634

CYB2
.04460
.06290
.09680
.00682

CAB2
.12610
.10730
.10600
-.00263

CNB3
.17080
.17870
.13130
-.00514

CYB3
-.01780
-.02800
-.01980
-.00027

CAB3
.05350
.07810
.11020
.00741

CNB4
-.07330
-.02700
-.04770
.00337

CYB4
-.00040
.00500
.01180
.00159

CAB4
.04050
.04340
.06410
.00308

MACH = .900 IB-ELV = 10.000
OB-ELV = .000

GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.040
4.080
4.010

ALPHA
-4.010
-.140
3.620
GRADIENT

MACH
.90500
.90300
.90300
-.00026

CNB2
.20130
.17480
.16510
-.00475

CYB2
.04710
.10800
.09450
.00622

CAB2
.12280
.10800
.09850
-.00319

CNB3
.17630
.19060
.14330
-.00429

CYB3
-.06860
-.06370
-.05720
.00149

CAB3
.02800
.06350
.07930
.00674

CNB4
-.03410
-.02440
-.01250
.00283

CYB4
-.02090
-.01220
-.01390
.00092

CAB4
.01770
.02700
.05070
.00432

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UB78) (12 APR 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO. 0/ 0 RN/L = 3.20 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.120
-4.050
-4.030

ALPHA
-4.000
-4.160
3.560
GRADIENT

MACH
1.10000
1.10000
1.10000
1.10000
GRADIENT

CNB2
.00010
.00010
.00010
.00010
GRADIENT

CNB2
.22580
.22140
.20390
GRADIENT

CNB3
.12790
.04100
.04710
GRADIENT

CNB3
-.15860
-.16100
-.14030
GRADIENT

CAB3
.15660
.14540
.10050
GRADIENT

CNB4
.17890
.16030
.11620
GRADIENT

CNB4
-.01420
.01430
.00020
GRADIENT

CAB4
-.01850
.01480
.03370
GRADIENT

RUN NO. 0/ 0 RN/L = 2.13 GRADIENT INTERVAL = -5.00/ 5.00

BETA
.000
.000

ALPHA
-4.230
3.660
GRADIENT

MACH
1.11000
1.10000
1.10000
1.10000
GRADIENT

CNB2
.15690
.21780
.01566
GRADIENT

CNB2
.15560
.15920
.00093
GRADIENT

CNB3
.11170
.07260
-.01005
GRADIENT

CNB3
-.02330
-.00310
.00519
GRADIENT

CAB3
.10400
.10100
-.00077
GRADIENT

CNB4
.06440
.05040
-.00360
GRADIENT

CNB4
.03480
.03310
-.00044
GRADIENT

CAB4
.04400
.06810
.00620
GRADIENT

RUN NO. 0/ 0 RN/L = 3.20 GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.030
4.080
4.010

ALPHA
-4.060
-4.160
3.620
GRADIENT

MACH
1.10000
1.10000
1.09000
1.00130
GRADIENT

CNB2
.05710
.09400
.17750
.01564
GRADIENT

CNB2
.13780
.12030
.14550
GRADIENT

CNB3
.13550
.10630
.06110
GRADIENT

CNB3
-.04370
-.06270
-.07520
GRADIENT

CAB3
.11040
.09170
.07570
GRADIENT

CNB4
.11220
.11420
.09210
GRADIENT

CNB4
-.03610
-.03100
-.02420
GRADIENT

CAB4
.04100
.05250
.07240
GRADIENT

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO. 65/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.120
-4.050
-4.030

ALPHA
-4.050
-4.210
3.610
GRADIENT

MACH
1.25000
1.23000
1.25000
1.00000
GRADIENT

CNB2
-.09680
-.08360
.00600
.01341
GRADIENT

CNB2
.23290
.24610
.22740
GRADIENT

CNB3
.12410
.06520
.09480
GRADIENT

CNB3
-.15160
-.18360
-.14310
GRADIENT

CAB3
.11540
.11260
.04250
GRADIENT

CNB4
.18200
.16860
.12750
GRADIENT

CNB4
.00040
.00030
-.00001
GRADIENT

CAB4
.05200
.06170
.07080
GRADIENT

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UB79) (03 APR 80)

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO. 65/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.120
-4.050
-4.030

ALPHA
-4.050
-4.210
3.610
GRADIENT

MACH
1.25000
1.23000
1.25000
1.00000
GRADIENT

CNB2
-.09680
-.08360
.00600
.01341
GRADIENT

CNB2
.23290
.24610
.22740
GRADIENT

CNB3
.12410
.06520
.09480
GRADIENT

CNB3
-.15160
-.18360
-.14310
GRADIENT

CAB3
.11540
.11260
.04250
GRADIENT

CNB4
.18200
.16860
.12750
GRADIENT

CNB4
.00040
.00030
-.00001
GRADIENT

CAB4
.05200
.06170
.07080
GRADIENT

IA190A, LH2 TK C TRY + GD2 P + LD2 AG LN, RMP ON

(R3UB79) (03 APR 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH =
OB-ELV =

PARAMETRIC DATA

1.250 IB-ELV = 10.000
.000

RUN NO. 66/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA
- .060
.000
.000

ALPHA
-3.980
- .210
3.650
GRADIENT

MACH
1.26000
1.26000
1.25000
- .00132

CNB2
.02940
.09870
.17050
.01849

CNB3
.12940
.08630
.06890
- .00792

CNB4
.09620
.06370
.04750
- .00637

CYB3
.00060
.08060
.03250
- .01009

CYB4
.02270
.03130
.03830
- .00204

CAB3
.10940
.08060
.03250
- .01009

CAB4
.09450
.11840
.11860
- .00315

RUN NO. 67/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.030
4.080
4.010

ALPHA
-4.030
- .200
3.600
GRADIENT

MACH
1.25000
1.25000
1.25000
.00000

CNB2
.02190
.09330
.13950
.01542

CNB3
.05460
.05890
.07690
.00292

CNB4
.07120
.07520
.04110
- .00394

CYB3
.11090
.06530
.03700
- .00969

CYB4
- .01720
- .01720
- .01720
- .00000

CAB3
.11090
.06530
.03700
- .00969

CAB4
.09900
.10110
.10330
- .00056

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH =
OB-ELV =

PARAMETRIC DATA

1.400 IB-ELV = 10.000
.000

RUN NO. 62/ 0 RN/L = 2.95 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.130
-4.050
-4.030

ALPHA
-3.970
- .230
3.650
GRADIENT

MACH
1.40000
1.40000
1.40000
.00000

CNB2
- .08160
- .05650
.00520
.01142

CNB3
.08260
.12220
.19920
.01533

CNB4
.16690
.15880
.12510
- .00551

CYB3
- .16680
- .15300
- .09450
- .00952

CYB4
- .00140
- .01420
- .01240
- .00180

CAB3
.07800
.06140
.04170
- .00477

CAB4
.10150
.08920
.06240
- .00514

RUN NO. 63/ 0 RN/L = 2.91 GRADIENT INTERVAL = -5.00/ 5.00

BETA
- .060
- .010
.000

ALPHA
-3.980
- .190
3.660
GRADIENT

MACH
1.40000
1.40000
1.40000
.00000

CNB2
.04070
.07730
.10070
.00785

CNB3
.01330
.02120
.12420
.01455

CNB4
.06570
.01880
.00170
- .00837

CYB3
- .06140
- .07850
- .04040
- .00277

CYB4
.03310
.05900
.04170
- .00111

CAB3
.03840
.09750
.04950
- .00642

CAB4
.11540
.11960
.09090
- .00322

IA190A, LH2 TK C TRY + GD2 P + LD2 AG LN, RMP ON

(R3UB80) (03 APR 80)

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

* (R3UB80) (03 APR 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

RUN NO. 64/ 0 RN/L = 2.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
4.030	-4.040	1.40000	.03880	.20580	.10760	.00530	-.04780	.11580	.03470	.01220	.08560
4.070	-.180	1.40000	.08300	.23510	.12780	.09230	-.06960	.08980	.04510	.00360	.07420
4.010	3.570	1.39000	.11990	.23390	.15510	.07070	-.06630	.09460	.02730	-.01900	.09310
	GRADIENT	-.00131	.01066	.00371	.00624	.00866	-.00245	-.00281	-.00095	-.00409	.00097

MACH = 1.400 IB-ELV = 10.000
 OB-ELV = .000

PARAMETRIC DATA

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

RUN NO. 27/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.060	-3.560	.59900	-.12920	.09940	.06200
-.030	.160	.59800	-.16270	.08720	.08040
.000	3.940	.59800	-.18860	.08850	.10300
	GRADIENT	-.00013	-.00792	-.00145	.00547

MACH = .600 IB-ELV = 10.000
 OB-ELV = 9.000

PARAMETRIC DATA

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UC01) (07 JAN 81)

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UC02) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH =
OB-ELV =

.600
9.000

IB-ELV = 10.000

RUN NO. 14/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.080
-4.030
-3.920

ALPHA
-3.810
-.050
3.730
GRADIENT

MACH
.59900
.60000
.60000
.00013

CNB5
-.05920
-.09360
-.10910
-.00662

CYB5
.13610
.13700
.14150
.00072

CAB5
.03950
.05850
.07850
.00517

RUN NO. 13/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-.040
.000
.020

ALPHA
-3.790
-.010
3.740
GRADIENT

MACH
.60000
.59900
.59900
-.00013

CNB5
-.12360
-.16220
-.18830
-.00859

CYB5
.09910
.08690
.08540
-.00182

CAB5
.06360
.08100
.10460
.00544

RUN NO. 15/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.010
3.990
3.980

ALPHA
-3.820
-.070
3.740
GRADIENT

MACH
.60000
.60100
.60000
-.00000

CNB5
-.18780
-.22550
-.25020
-.00825

CYB5
.13210
.12860
.12870
-.00045

CAB5
.04450
.06260
.08190
.00495

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UC03) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH =
OB-ELV =

.900
9.000

IB-ELV = 10.000

RUN NO. 24/ 0 RN/L = 3.69 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.110
-4.090
-4.020
-3.920

ALPHA
-4.250
-3.610
.120
3.830
GRADIENT

MACH
.90100
.89900
.90100
.90300
.00035

CNB5
-.05310
-.05670
-.06680
-.07490
-.00263

CYB5
.19300
.19190
.20200
.21950
.00334

CAB5
.03430
.03700
.05600
.08020
.00566

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON (R3UC03) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 25/ 0 RN/L = 3.67 GRADIENT INTERVAL = -5.00/ 5.00

BETA
- .060
- .030
.000

ALPHA
-3.580
.140
3.910
GRADIENT

MACH
.90100
.90400
.90400
.00040

CNB5
- .20220
- .22560
- .22380
- .00288

CYB5
.03510
.03930
.04240
.00097

CAB5
.05890
.06820
.09070
.00425

RUN NO. 26/ 0 RN/L = 3.65 GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.030
4.070
4.060
4.000

ALPHA
-4.370
-3.570
.150
3.840
GRADIENT

MACH
.90400
.90100
.90300
.90200
- .00007

CNB5
- .28030
- .29500
- .32740
- .31510
- .00430

CYB5
.13690
.13420
.13690
.14910
.00154

CAB5
.00360
.00790
.03040
.05730
.00652

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UC04) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 20/ 0 RN/L = 3.23 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.080
-3.990
-3.890

ALPHA
-3.630
.090
3.850
GRADIENT

MACH
1.10000
1.10000
1.10000
- .00000

CNB5
- .03520
- .06670
- .04360
- .00111

CYB5
.25130
.22220
.25770
.00087

CAB5
.03110
.04930
.07570
.00596

RUN NO. 21/ 0 RN/L = 3.22 GRADIENT INTERVAL = -5.00/ 5.00

BETA
- .060
- .030
.000

ALPHA
-3.590
.110
3.870
GRADIENT

MACH
1.10000
1.10000
1.09000
- .00134

CNB5
- .22900
- .27450
- .27620
- .00631

CYB5
.08210
.06830
.09570
.00184

CAB5
.00790
.03050
.05500
.00631

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UC04) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO. 22/ 0 RN/L = 3.21 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.990	-3.630	1.10000	-.32560	.10410	-.01480
3.980	.080	1.10000	-.44190	.08100	.00770
3.960	3.830	1.09000	-.41070	.10260	.02870
	GRADIENT	-.00134	-.01137	-.00019	.00583

MACH = 1.100 IB-ELV = 10.000
OB-ELV = 9.000

PARAMETRIC DATA

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UC05) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO. 49/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.130	-3.960	1.25000	.01200	.28570	.00080
-4.040	.050	1.24000	-.03680	.24940	.02930
-4.030	3.360	1.25000	.00220	.30160	.05880
	GRADIENT	-.00009	-.00172	.00178	.00790

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

PARAMETRIC DATA

RUN NO. 50/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.060	-3.970	1.25000	-.20490	.11670	-.00770
-.020	-.400	1.25000	-.26520	.10570	.00780
.000	3.860	1.25000	-.26940	.16590	.03660
	GRADIENT	-.00000	-.00801	.00653	.00569

RUN NO. 51/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.030	-3.970	1.26000	-.28760	.10710	-.03200
4.080	-.250	1.25000	-.37670	.05840	-.02360
4.010	3.630	1.25000	-.41750	.08360	.00420
	GRADIENT	-.00131	-.01704	-.00302	.00478

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON (R3UC06) (07 JAN 81)

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
 OB-ELV = .000

RUN NO. 52/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.130	-3.970	1.40000	.06190	.34470	-.01830
-4.050	-.250	1.40000	.00030	.30870	-.01190
-4.000	3.850	1.40000	-.00440	.31920	.05120
	GRADIENT	.00000	-.00835	-.00316	.00890

RUN NO. 53/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.060	-3.970	1.40000	-.15690	.14340	-.03560
-.030	-.500	1.40000	-.20980	.12360	-.01610
-.010	3.750	1.40000	-.24950	.20650	.02250
	GRADIENT	-.00000	-.01190	.00859	.00758

RUN NO. 54/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.020	-3.950	1.40000	-.21620	.14730	-.05600
4.080	-.180	1.40000	-.31200	.09920	-.03150
4.010	3.620	1.40000	-.35790	.10790	-.00090
	GRADIENT	-.00000	-.01871	-.00519	.00728

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
 OB-ELV = 9.000

RUN NO. 36/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.080	-3.640	.60100	-.06220	.13070	.03840
-4.020	-.100	.60000	-.09710	.13110	.05680
-3.920	3.820	.59900	-.11250	.13860	.07760
	GRADIENT	-.00027	-.00674	.00106	.00525

IA190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

(R3UC07) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

XMRP = .0171 SQ. IN.
YMRP = .0000 INCHES
ZMRP = .0000 INCHES
SCALE = .0300

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 37/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
- .060	-3.600	.60000	-.12880	.08860	.06270
- .030	.140	.60000	-.16180	.07780	.08090
.010	3.900	.59900	-.18980	.07780	.10450
	GRADIENT	-.00013	-.00813	-.00144	.00557

RUN NO. 38/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.070	-3.570	.59800	-.19500	.12490	.04290
4.080	.050	.60000	-.23060	.12420	.05920
4.000	3.890	.59900	-.25170	.12280	.08100
	GRADIENT	.00013	-.00758	-.00028	.00511

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

XMRP = .0171 SQ. IN.
YMRP = .0000 INCHES
ZMRP = .0000 INCHES
SCALE = .0300

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
OB-ELV = 9.000

IA190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

(R3UC08) (07 JAN 81)

RUN NO. 33/ 0 RN/L = 3.64 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.080	-3.650	.90100	-.05650	.18690	.03770
-4.020	.090	.90100	-.06840	.19290	.05590
-3.930	3.810	.90000	-.07500	.21110	.08030
	GRADIENT	-.00013	-.00248	.00324	.00571

RUN NO. 34/ 0 RN/L = 3.63 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
- .060	-3.590	.90300	-.20500	.02450	.05790
- .030	.180	.90200	-.22400	.03190	.07000
.010	3.840	.90400	-.22500	.03780	.09240
	GRADIENT	.00013	-.00270	.00179	.00464

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

(R3UC08) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 35/ 0 RN/L = 3.62 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.000	-3.610	.90400	-.27980	.12490	.00440
3.970	.140	.90200	-.30090	.12800	.02600
3.960	3.790	.90200	-.31140	.12800	.05550
	GRADIENT	-.00027	-.00428	.00042	.00690

IA190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF

(R3UC09) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN.
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
OB-ELV = 9.000

RUN NO. 30/ 0 RN/L = 3.24 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.080	-3.620	1.10000	-.02980	.24420	.03010
-4.010	.060	1.10000	-.06830	.21440	.04830
-3.920	3.830	1.10000	-.05030	.24890	.07610
	GRADIENT	.00000	-.00272	.00067	.00618

RUN NO. 31/ 0 RN/L = 3.22 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.060	-3.550	1.10000	-.23440	.08170	.00950
-.030	.220	1.10000	-.27800	.06640	.03120
.000	3.730	1.10000	-.28090	.09660	.05380
	GRADIENT	-.00000	-.00645	.00197	.00608

RUN NO. 32/ 0 RN/L = 3.21 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.990	-3.680	1.10000	-.32570	.09780	-.01390
3.970	.100	1.10000	-.41670	.07320	.00420
3.970	3.810	1.10000	-.40390	.08830	.02670
	GRADIENT	-.00000	-.01048	-.00128	.00542

IA190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF (R3UC10) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

XMRP = .0171 SQ.IN.
YMRP = .0000 INCHES
ZMRP = .0000 INCHES
.0300

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

PARAMETRIC DATA

RUN NO. 45/ 0 RN/L = 3.02 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.140	-3.590	1.25000	.02070	.28730	.00090
-4.040	.140	1.25000	-.02810	.25220	.02930
-4.000	3.850	1.24000	-.00650	.29820	.06250
	GRADIENT	-.00134	-.00366	.00146	.00828

RUN NO. 46/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.060	-3.610	1.25000	-.21550	.10920	-.00680
-.030	.110	1.25000	-.28130	.10430	.01130
.000	3.890	1.25000	-.27180	.16320	.03490
	GRADIENT	.00000	-.00748	.00722	.00556

RUN NO. 47/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.070	-3.600	1.25000	-.29840	.10720	-.02860
4.060	.150	1.25000	-.35820	.06160	-.01400
4.020	3.830	1.25000	-.39770	.07180	.00330
	GRADIENT	.00000	-.01337	-.00479	.00429

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

XMRP = .0171 SQ.IN.
YMRP = .0000 INCHES
ZMRP = .0000 INCHES
.0300

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

MACH = 1.400 IB-ELV = 10.000
OB-ELV = .000

PARAMETRIC DATA

RUN NO. 42/ 0 RN/L = 2.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.120	-3.630	1.40000	.05430	.34760	-.01780
-4.020	.110	1.40000	-.01190	.30490	.01470
-3.930	3.870	1.40000	-.01850	.31530	.05110
	GRADIENT	.00000	-.00970	-.00430	.00919

IA190A, LH2 TK C TRY + G02 P + L02 AG LN,RMP OFF (R3UC11) (07 JAN 81)

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP OFF (R3UC11) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 43/ 0 RN/L = 2.90 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.060	-3.540	1.41000	-.16130	.14270	-.03530
-.030	.080	1.40000	-.20990	.13030	-.01460
.000	3.850	1.40000	-.25350	.21130	.02290
	GRADIENT	-.00134	-.01247	.00937	.00789

RUN NO. 44/ 0 RN/L = 2.91 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.040	-3.590	1.40000	-.23060	.14390	-.05620
4.060	.160	1.40000	-.31230	.10410	-.03030
4.010	3.820	1.40000	-.36230	.11120	.00080
	GRADIENT	-.00000	-.01779	-.00444	.00769

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = .600 IB-ELV = 10.000
OB-ELV = .000

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON (R3UC76) (07 JAN 81)

RUN NO. 0/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.140	-3.960	.60000	-.04330	.13740	.03850
-4.050	-.130	.60000	-.07780	.13870	.05760
-4.000	3.850	.59900	-.10380	.14320	.07850
	GRADIENT	-.00013	-.00774	.00075	.00512

RUN NO. 0/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.060	-3.990	.59900	-.12360	.10540	.06020
-.010	-.090	.60000	-.16150	.09130	.08000
.000	3.710	.60000	-.19070	.09110	.10250
	GRADIENT	.00013	-.00872	-.00186	.00549

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON (R3UC76) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO.

O/ O

RN/L =

4.50

GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.080
4.010

ALPHA
- .240
3.650
GRADIENT

MACH
.59900
.60000
.00026

CNB5
- .22930
- .25100
- .00558

CYB5
.13050
.12850
- .00051

CAB5
.06190
.08260
.00532

MACH = .600 IB-ELV = 10.000
OB-ELV = .000

PARAMETRIC DATA

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UC77) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO.

59/ O

RN/L =

3.65

GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.140
-4.050
-4.030

ALPHA
-4.010
- .210
3.650
GRADIENT

MACH
.90200
.90100
.90400
.00026

CNB5
- .05810
- .05960
- .07110
- .00170

CYB5
.18490
.19860
.21440
.00385

CAB5
.03760
.05760
.08330
.00597

MACH = .900 IB-ELV = 10.000
OB-ELV = .000

PARAMETRIC DATA

RUN NO.

60/ O

RN/L =

3.63

GRADIENT INTERVAL = -5.00/ 5.00

BETA
- .060
- .010
.000

ALPHA
-3.990
- .130
3.660
GRADIENT

MACH
.90300
.90200
.90200
- .00013

CNB5
- .20980
- .23230
- .22540
- .00205

CYB5
.02740
.02880
.01830
- .00118

CAB5
.05860
.07250
.09500
.00475

RUN NO.

61/ O

RN/L =

3.65

GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.040
4.080
4.010

ALPHA
-4.010
- .140
3.620
GRADIENT

MACH
.90500
.90300
.90300
- .00026

CNB5
- .29920
- .34000
- .31570
- .00220

CYB5
.13020
.12450
.14280
.00164

CAB5
.01210
.03550
.06240
.00659

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON (R3UC78) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 0/ 0 RN/L = 3.20 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.120	-4.000	1.10000	-.01930	.25860	.03370
-4.050	-.160	1.10000	-.07010	.22230	.05270
-4.030	3.560	1.10000	-.03830	.25110	.07800
	GRADIENT	-.00000	-.00257	-.00104	.00585

RUN NO. 0/ 0 RN/L = 2.13 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
.000	-.230	1.11000	-.28410	.05870	.03620
.000	3.660	1.10000	-.27270	.09380	.05560
	GRADIENT	-.00257	.00293	.00902	.00499

RUN NO. 0/ 0 RN/L = 3.20 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.030	-4.060	1.10000	-.32920	.10230	-.01560
4.080	-.160	1.10000	-.44450	.07920	.00930
4.010	3.620	1.09000	-.40720	.10080	.03210
	GRADIENT	-.00130	-.01026	-.00023	.00621

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 65/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.120	-4.050	1.25000	.02430	.29650	.00180
-4.050	-.210	1.23000	-.03700	.24420	.03110
-4.030	3.610	1.25000	.00750	.31120	.06330
	GRADIENT	-.00000	-.00221	.00191	.00803

DATE 23 AUG 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON (R3UC79) (07 JAN 81)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 66/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-0.060	-3.980	1.26000	-0.20100	.10740	-0.00850
.000	-2.10	1.26000	-0.27370	.09650	.01130
.000	3.650	1.25000	-0.26290	.15100	.03660
	GRADIENT	-0.00132	-0.00807	.00575	.00591

RUN NO. 67/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.030	-4.030	1.25000	-0.27560	.11020	-0.03030
4.080	-2.00	1.25000	-0.36800	.05840	-0.02180
4.010	3.600	1.25000	-0.40740	.08380	.00590
	GRADIENT	.00000	-0.01728	-.00347	.00474

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ.IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
OB-ELV = .000

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON (R3UC80) (07 JAN 81)

RUN NO. 62/ 0 RN/L = 2.95 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-4.130	-3.970	1.40000	.05080	.35010	-0.01690
-4.050	-2.30	1.40000	-0.00130	.31840	.01560
-4.030	3.650	1.40000	-0.00970	.32270	.05110
	GRADIENT	.00000	-0.00790	-.00357	.00893

RUN NO. 63/ 0 RN/L = 2.91 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-0.060	-3.980	1.40000	-0.14210	.14570	-0.03530
-0.010	-0.190	1.40000	-0.20630	.12570	-0.01370
.000	3.660	1.40000	-0.24340	.20550	.02460
	GRADIENT	.00000	-0.01325	.00786	.00785

IA190A, LH2 TK C TRY + G02 P + L02 AG LN, RMP ON

(R3UC80) (07 JAN 81)

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

MACH = 1.400
 OB-ELV = 10.000
 IB-ELV = .000

PARAMETRIC DATA

RUN NO. 64/ 0 RN/L = 2.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
4.030	-4.040	1.40000	-.20780	.15300	-.05520
4.070	-.180	1.40000	-.30520	.10560	-.03030
4.010	3.570	1.39000	-.34870	.11440	.00000
	GRADIENT	-.00131	-.01855	-.00511	.00725

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD01) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

MACH = .600
 OB-ELV = 10.000
 IB-ELV = 9.000

PARAMETRIC DATA

RUN NO. 27/ 0 RN/L = 4.95 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6
-.060	-3.560	.59900	.00860	-.01370	-.01940
-.030	.160	.59800	.00550	-.01140	-.00710
.000	3.940	.59800	.00680	-.01300	.00540
	GRADIENT	-.00013	-.00024	.00009	.00331

CNB7	CYB7	CAB7
-.00970	-.00220	-.02260
-.01520	-.00230	-.01050
-.01970	-.00230	.00170
-.00133	-.00001	.00324

CNB8	CYB8	CAB8
-.03420	-.00790	-.01650
-.04070	-.00790	-.00620
-.04480	-.00730	.00400
-.00141	.00008	.00273

(R3UD02) (27 MAR 80)

IA190A, GH2 PRESSURE LINE, RAMPS ON

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

MACH =
 OB-ELV = 10.000
 9.000

PARAMETRIC DATA

RUN NO. 14/ 0 RN/L = 5.00 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	BETA	MACH	CNB6	CNB5	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-4.080	-3.810	-4.080	.59900	-.00560	-.00060	-.02230	-.02250	-.00050	-.02140	-.05920	-.01990	-.01960
-4.030	-.050	-4.030	.60000	-.00750	-.00070	-.00890	-.02690	-.00050	-.00920	-.06550	-.01990	-.00860
-3.920	3.730	-3.920	.60000	-.00420	-.00070	.00330	-.02840	-.00060	.00320	-.06810	-.02020	.00220
GRADIENT		GRADIENT	.00013	.00019	-.00001	.00340	-.00078	-.00001	.00326	-.00118	-.00004	.00289

RUN NO. 13/ 0 RN/L = 4.98 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	BETA	MACH	CNB6	CNB5	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-0.040	-3.790	-0.040	.60000	.00850	-.01440	-.01940	-.01080	-.00100	-.02260	-.03470	-.01070	-.01650
.000	-.010	.000	.59900	.00550	-.01180	-.00610	-.01630	-.00070	-.00970	-.04120	-.01070	-.00600
.020	3.740	.020	.59900	.00670	-.01300	.00640	-.02070	-.00120	.00220	-.04580	-.01040	.00420
GRADIENT		GRADIENT	-.00013	-.00024	.00019	.00343	-.00131	-.00003	.00329	-.00147	.00004	.00275

RUN NO. 15/ 0 RN/L = 4.99 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	BETA	MACH	CNB6	CNB5	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
4.010	-3.820	4.010	.60000	.02390	-.03890	-.01620	-.00100	-.00120	-.01860	-.00700	-.08130	-.01050
3.990	-.070	3.990	.60100	.02130	-.03260	-.00280	-.00600	-.00050	-.00650	-.01240	-.07750	-.00020
3.980	3.740	3.980	.60000	.01770	-.02910	.01000	-.01210	-.00060	.00510	-.01730	-.07580	.01090
GRADIENT		GRADIENT	-.00000	-.00082	.00130	.00347	-.00147	.00008	.00313	-.00136	.00073	.00283

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

MACH =
 OB-ELV = 10.000
 9.000

PARAMETRIC DATA

RUN NO. 24/ 0 RN/L = 3.69 GRADIENT INTERVAL = -5.00/ 5.00

	ALPHA	BETA	MACH	CNB6	CNB5	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-4.110	-4.250	-4.110	.90100	.03840	-.01590	-.02020	-.01420	.00430	-.02460	-.08270	-.01740	-.02300
-4.090	-3.610	-4.090	.89900	.03630	-.01510	-.02030	-.01470	.00400	-.02230	-.08370	-.01740	-.02080
-4.020	.120	-4.020	.90100	.03280	-.01870	-.00830	-.01510	.00320	-.00960	-.08840	-.01740	-.01000
-3.920	3.830	-3.920	.90300	.02980	-.02540	.00270	-.01720	.00390	.00220	-.08740	-.01970	.00290
GRADIENT		GRADIENT	.00035	-.00100	-.00121	.00294	-.00034	-.00006	.00332	-.00062	-.00026	.00317

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD03) (27 MAR 80)

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD03) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
 OB-ELV = 9.000

RUN NO. 25/ 0 RN/L = 3.67 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
-0.060	-3.580	.90100	.05710	-.03980	-.01620	-.01640	-.00070	-.02330	-.04560	-.01010	-.01670
-0.030	.140	.90400	.04910	-.04090	-.00440	-.01670	-.00070	-.01010	-.04880	-.00150	-.00520
.000	3.910	.90400	.04200	-.04690	.00830	.02000	-.00080	.00250	-.05410	-.00220	-.00530
	GRADIENT	.00040	-.00202	-.00095	.00327	-.00048	-.00001	.00344	-.00114	-.00000	.00294

RUN NO. 26/ 0 RN/L = 3.65 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
4.030	-4.370	.90400	.07250	-.07300	-.01680	-.00170	-.00050	-.02030	-.01200	-.10460	-.01040
4.070	-3.570	.90100	.07160	-.07320	-.01330	-.00210	-.00090	-.01760	-.01240	-.10520	-.00820
4.060	.150	.90300	.06370	-.06930	-.00140	-.00480	-.00030	-.00540	-.01860	-.10180	-.00220
4.000	3.840	.90200	.05370	-.06850	.01120	-.00980	.00020	.00620	-.02330	-.09730	.01270
	GRADIENT	-.00007	-.00230	.00062	.00336	-.00097	.00012	.00323	-.00143	.00094	.00281

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
 OB-ELV = 9.000

RUN NO. 20/ 0 RN/L = 3.23 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
-4.080	-3.630	1.10000	.00200	-.00820	-.01660	.03160	.00430	-.01860	-.09980	-.01820	-.02050
-3.990	.090	1.10000	.00910	-.00940	-.00420	.02450	.00240	-.00470	-.11270	-.01490	-.00890
-3.890	3.850	1.10000	.01570	-.01140	.00610	.01400	.00160	.00820	-.11370	-.01710	-.00220
	GRADIENT	-.00000	.00183	-.00043	.00303	-.00235	-.00036	.00358	-.00186	.00015	.00303

RUN NO. 21/ 0 RN/L = 3.22 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
-0.060	-3.590	1.10000	.01960	-.03770	-.01760	.03390	-.01040	-.01840	-.06500	-.01440	-.01610
-0.030	.110	1.10000	.02090	-.04140	-.00510	.02390	-.01160	-.00480	-.07630	-.01080	-.00490
.000	3.870	1.09000	.02460	-.03030	.01000	.02700	-.01120	.00960	-.07920	-.01300	.00710
	GRADIENT	-.00134	.00067	.00100	.00370	-.00092	-.00011	.00375	-.00190	.00019	.00311

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD04) (27 MAR 80)

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD04) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ.IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 1.100 IB-ELV = 10.000
 OB-ELV = 9.000

PARAMETRIC DATA

RUN NO. 22/ 0 RN/L = 3.21 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
3.990	-3.630	1.10000	.03480	-.05930	-.01430	.04620	-.01190	-.01780	-.03020	-.11020	-.00660
3.980	.080	1.10000	.03270	-.07060	-.00070	.03460	-.01120	-.00440	-.03670	-.10910	.00400
3.960	3.830	1.09000	.03070	-.06670	.01160	.02190	-.01280	.00950	-.03600	-.11670	.01600
	GRADIENT	-.00134	-.00055	-.00099	.00347	-.00326	-.00012	.00366	-.00078	-.00087	.00303

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD05) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ.IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 1.250 IB-ELV = 10.000
 OB-ELV = .000

PARAMETRIC DATA

RUN NO. 49/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-4.130	-3.960	1.25000	-.01040	-.03010	-.02580	.01740	.00350	-.02110	-.09530	-.01880	-.01920
-4.040	.050	1.24000	.00010	-.01730	-.01390	.01710	.00780	-.00660	-.11550	-.01470	-.01040
-4.030	3.360	1.25000	-.00230	-.01730	-.00210	.00410	.00470	.00210	-.11900	-.01550	.00030
	GRADIENT	-.00009	.00116	.00180	.00323	-.00176	.00020	.00318	-.00330	.00047	.00265

RUN NO. 50/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-.060	-3.970	1.25000	.01030	-.05730	-.02850	.02580	-.00420	-.02000	-.06440	-.01620	-.01660
-.020	-.400	1.25000	.01140	-.07460	-.01690	.01910	-.00620	-.00870	-.07790	-.01290	-.00700
.000	3.860	1.25000	.02350	-.05660	.00610	.00760	-.01090	.00700	-.08250	-.02000	.00620
	GRADIENT	-.00000	.00172	.00022	.00445	-.00234	-.00086	.00346	-.00227	-.00052	.00292

RUN NO. 51/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
4.030	-3.970	1.26000	.02450	-.07330	-.02360	.03360	-.01000	-.01860	-.03590	-.10460	-.00700
4.080	-.250	1.25000	.03000	-.09390	-.00670	.02660	-.00610	-.00520	-.04010	-.11120	.00380
4.010	3.630	1.25000	.02210	-.06600	.00780	.01490	-.00310	.00760	-.04130	-.12520	.01670
	GRADIENT	-.00131	-.00033	.00101	.00413	-.00246	.00091	.00345	-.00071	-.00272	.00312

(R3UD06) (27 MAR 80)

IA190A, GH2 PRESSURE LINE, RAMPS ON

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

MACH = 1.400 IB-ELV = 10.000
 OB-ELV = .000

PARAMETRIC DATA

RUN NO. 52/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-4.130	-3.970	1.40000	.01200	-.04190	-.02890	.00000	.00110	-.02030	-.07070	-.03140	-.01370
-4.050	-.250	1.40000	-.00940	-.03350	-.01370	-.00030	.00800	-.00630	-.10090	-.01690	-.00680
-4.000	3.850	1.40000	-.02000	-.01460	-.00140	-.00130	.00950	.00540	-.11640	-.01440	.00150
	GRADIENT	.00000	-.00105	.00351	.00351	-.00017	.00106	.00328	-.00581	.00215	.00195

RUN NO. 53/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-.060	-3.970	1.40000	-.00080	-.08390	-.02950	.01330	-.00460	-.01950	-.05580	-.02280	-.01340
-.030	-.500	1.40000	-.00100	-.08970	-.01650	.00560	-.00310	-.00910	-.07440	-.01870	-.00460
-.010	3.750	1.40000	.01650	-.08750	.00420	.00410	-.00690	.00430	-.08350	-.02520	.00760
	GRADIENT	-.00000	.00231	-.00043	.00438	-.00116	-.00032	.00309	-.00353	-.00036	.00273

RUN NO. 54/ 0 RN/L = 2.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
4.020	-3.950	1.40000	.01130	-.10970	-.02710	.01670	-.01030	-.01640	-.03380	-.10830	-.00520
4.080	-.180	1.40000	.01110	-.11640	-.01060	.01240	-.00760	-.00370	-.03920	-.12380	.00570
4.010	3.620	1.40000	.01100	-.07660	.00310	.01090	-.00190	.00800	-.04140	-.12900	.01730
	GRADIENT	-.00000	-.00004	.00438	.00399	-.00077	.00111	.00322	-.00100	-.00273	.00297

REFERENCE DATA

SREF = .0171 SQ. IN.
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

MACH = .600 IB-ELV = 10.000
 OB-ELV = 9.000

PARAMETRIC DATA

RUN NO. 36/ 0 RN/L = 4.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-4.080	-3.640	.60100	-.00610	-.00050	-.02210	-.02340	-.00280	-.01970	-.06060	-.01980	-.01980
-4.020	.100	.60000	-.00640	-.00070	-.00880	-.02790	-.00250	-.00770	-.06540	-.01990	-.00850
-3.920	3.820	.59900	-.00260	-.00120	.00290	-.02960	-.00170	.00400	-.06810	-.02020	.00210
	GRADIENT	-.00027	.00047	-.00008	.00335	-.00083	.00015	.00318	-.00101	-.00005	.00294

(R3UD07) (27 MAR 80)

IA190A, GH2 PRESSURE LINE, RAMPS OFF

IA190A, GH2 PRESSURE LINE, RAMPS OFF

(R3UD08) (27 MAR 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = .900 IB-ELV = 10.000
 OB-ELV = 9.000

RUN NO. 35/ 0 RN/L = 3.62 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
4.000	-3.610	.90400	.07130	-.07270	-.01070	-.00300	-.00200	-.01470	-.01510	-.10670	-.00750
3.970	.140	.90200	.06410	-.06900	.00330	-.00740	-.00130	-.00240	-.01950	-.10380	.00290
3.960	3.790	.90200	.05430	-.06830	.01390	-.01190	-.00070	.00900	-.02330	-.09840	.01320
	GRADIENT	-.00027	-.00230	.00060	.00333	-.00120	.00018	.00320	-.00111	.00112	.00280

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
 OB-ELV = 9.000

RUN NO. 30/ 0 RN/L = 3.24 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
-4.080	-3.620	1.10000	.00410	.00970	-.02210	.02870	.00740	-.01890	-.10000	-.01760	-.02070
-4.010	.060	1.10000	.00950	-.00340	-.01040	.02440	.00630	-.00570	-.11120	-.01430	-.00920
-3.920	3.830	1.10000	.01870	-.01220	.00110	.01160	.00510	.00710	-.11300	-.01610	.00190
	GRADIENT	.00000	.00196	-.00034	.00311	-.00230	-.00031	.00349	-.00174	.00020	.00303

RUN NO. 31/ 0 RN/L = 3.22 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
-.060	-3.550	1.10000	.02160	.03950	-.02200	.03200	-.00690	-.01860	-.06310	-.01470	-.01590
-.030	.220	1.10000	.02390	-.04200	-.00900	.02320	-.00770	-.00480	-.07590	-.01080	-.00460
.000	3.730	1.10000	.02710	-.03140	.00600	.01110	-.00780	.00860	-.07950	-.01390	.00670
	GRADIENT	-.00000	.00075	.00109	.00384	-.00286	-.00012	.00374	-.00227	.00012	.00310

RUN NO. 32/ 0 RN/L = 3.21 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
3.990	-3.680	1.10000	.03680	-.06030	-.01870	.04320	-.00840	-.01750	-.02950	-.11260	-.00650
3.970	.100	1.10000	.03570	-.07080	-.00410	.03220	-.00730	-.00440	-.03540	-.11010	.00440
3.970	3.810	1.10000	.03050	-.06760	.01000	.01780	-.00850	.00840	-.03500	-.11730	.01620
	GRADIENT	-.00000	-.00084	-.00098	.00383	-.00339	-.00001	.00346	-.00074	-.00062	.00303

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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(R3UD11) (27 MAR 80)

IA190A, GH2 PRESSURE LINE, RAMPS OFF

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO. 43/ 0 RN/L = 2.90 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-.060
-.030
.000

ALPHA
-3.540
.080
3.850
GRADIENT

MACH
1.41000
1.40000
1.40000
-.00134

CNB6
-.00330
-.00200
.01380
.00233

CYB6
-.08920
-.09280
-.07940
.00134

CAB6
-.02980
-.01630
.00220
.00433

CNB7
.00800
.00410
.00140
-.00089

CYB7
-.00580
-.00620
.00740
-.00022

CAB7
-.01800
-.00700
.00520
.00314

CNB8
-.05840
-.08010
-.08540
-.00364

CYB8
-.02690
-.02150
-.02930
-.00034

CAB8
-.01040
-.00130
.00990
.00275

MACH = 1.400
OB-ELV = .000
IB-ELV = 10.000

PARAMETRIC DATA

RUN NO. 44/ 0 RN/L = 2.91 GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.040
4.060
4.010

ALPHA
-3.590
.160
3.820
GRADIENT

MACH
1.40000
1.40000
1.40000
-.00000

CNB6
.01140
.01010
.01050
-.00012

CYB6
-.11320
-.11480
-.07520
.00511

CAB6
-.02720
-.01230
.00310
.00409

CNB7
.02770
.01100
.01000
-.00240

CYB7
-.01040
-.00740
-.00160
.00119

CAB7
-.01560
-.00330
.00860
.00327

CNB8
-.03600
-.04090
-.04230
-.00085

CYB8
-.10570
-.12320
-.12290
-.00233

CAB8
-.00380
-.00710
.01790
.00293

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD76) (12 APR 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

RUN NO. 0/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.140
-4.050
-4.000

ALPHA
-3.960
-.130
3.850
GRADIENT

MACH
.60000
.60000
.59900
-.00013

CNB6
-.00670
-.00700
-.00420
.00032

CYB6
-.00100
-.00110
-.00190
-.00012

CAB6
-.02280
-.00780
.00430
.00347

CNB7
-.02310
-.02740
-.02790
-.00061

CYB7
-.00130
-.00050
-.00050
.00010

CAB7
-.02190
-.00920
.00350
.00325

CNB8
-.05900
-.06540
-.06690
-.00101

CYB8
-.02020
-.02020
-.02050
-.00004

CAB8
-.02070
-.00930
.00210
.00292

MACH = .600
OB-ELV = .000
IB-ELV = 10.000

PARAMETRIC DATA

RUN NO. 0/ 0 RN/L = 4.93 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-.060
-.010
.000

ALPHA
-3.990
-.090
3.710
GRADIENT

MACH
.59900
.60000
.60000
.00013

CNB6
.01070
.00770
.00730
-.00044

CYB6
-.01560
-.01410
-.01530
.00004

CAB6
-.01980
-.00490
.00840
.00366

CNB7
-.01020
-.01680
-.02120
-.00143

CYB7
-.00180
-.00150
-.00160
.00003

CAB7
-.02310
-.01020
.00170
.00322

CNB8
-.03320
-.03990
-.04400
-.00140

CYB8
-.01100
-.01070
-.00980
.00016

CAB8
-.01730
-.00630
.00400
.00277

MACH = .600
OB-ELV = .000
IB-ELV = 10.000

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD76) (12 APR 80)

PARAMETRIC DATA

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT MACH = .600 IB-ELV = 10.000
 LREF = .0000 INCHES YMRP = .0000 IN. YT OB-ELV = .000
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

RUN NO. 0/ 0 RN/L = 4.50 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
BETA										
4.080	.59900	.02140	-.03470	-.00390	-.00720	-.00050	-.00760	-.01000	-.08200	-.00030
4.010	.60000	.01930	-.03070	.00800	-.01330	-.00070	.00360	-.01590	-.07850	.01030
	.00026	-.00054	.00103	.00306	-.00157	-.00005	.00288	-.00152	.00090	.00272
GRADIENT										

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD77) (03 APR 80)

PARAMETRIC DATA

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT MACH = .900 IB-ELV = 10.000
 LREF = .0000 INCHES YMRP = .0000 IN. YT OB-ELV = .000
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

RUN NO. 59/ 0 RN/L = 3.65 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
BETA										
-4.140	.90200	.03340	-.01710	-.02100	-.01960	.00270	-.02150	-.08420	-.02010	-.02150
-4.050	.90100	.02890	-.02030	-.00860	-.02060	.00190	-.00840	-.09000	-.01980	-.00990
-4.030	.90400	.02800	-.02660	.00410	-.01930	.00310	.00380	-.08850	-.02240	.00300
GRADIENT	.00026	-.00070	-.00124	.00328	.00004	.00005	.00330	-.00056	-.00030	.00320

RUN NB. 60/ 0 RN/L = 3.63 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
BETA										
-.060	.90300	.05560	-.04090	-.01730	-.01960	-.00080	-.02200	-.04550	-.00340	-.01700
-.010	.90200	.04800	-.04500	-.00150	-.01950	-.00080	-.00940	-.04880	-.00220	-.00540
.000	.90200	.03970	-.04930	.00910	-.02220	-.00080	.00320	-.05180	-.00160	.00550
GRADIENT	-.00013	-.00208	-.00110	.00345	-.00034	-.00000	.00329	-.00082	.00024	.00294

RUN NO. 61/ 0 RN/L = 3.65 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
BETA										
4.040	.90500	.07030	-.07320	-.01380	-.00260	-.00010	-.01770	-.01480	-.10740	-.00880
4.080	.90300	.06280	-.06970	.00110	-.00640	-.00010	-.00470	-.01780	-.10750	.00200
4.010	.90300	.05130	-.06700	.01210	-.01190	-.00030	.00720	-.02280	-.10220	.01260
GRADIENT	-.00026	-.00249	.00081	.00340	-.00122	-.00003	.00326	-.00105	.00068	.00280

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD78) (12 APR 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LRZF = .0000 INCHES YMRP = .0000 IN. YT
 BRZF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.100 IB-ELV = 10.000
 OB-ELV = .000

RUN NO. 0/ 0 RN/L = 3.20 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-4.120	-4.000	1.10000	.00200	-.00850	-.02130	.03040	.00900	-.01990	-.09770	-.01820	-.02200
-4.050	-.160	1.10000	.00860	-.00820	-.00890	.02560	.00750	-.00630	-.11030	-.01550	-.00970
-4.030	3.560	1.10000	.01780	-.01060	.00160	.01330	.00670	.00640	-.11370	-.01640	.00120
	GRADIENT	-.00000	.00209	-.00028	.00303	-.00226	-.00030	.00348	-.00212	.00024	.00307

RUN NO. 0/ 0 RN/L = 2.13 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
.000	-.230	1.11000	.02190	-.04310	-.01330	.02140	-.00580	-.00660	-.07330	-.00980	-.00580
.000	3.660	1.10000	.02560	-.02950	.00330	.01050	-.00660	.00790	-.07800	-.01290	.00720
	GRADIENT	-.00257	.00095	.00350	.00427	-.00280	-.00021	.00373	-.00121	-.00080	.00334

RUN NO. 0/ 0 RN/L = 3.20 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
4.030	-4.060	1.10000	.03580	-.05800	-.02290	.04420	-.00650	-.01900	-.02740	-.11620	-.00780
4.080	-.160	1.10000	.03580	-.06730	-.00560	.03280	-.00460	-.00550	-.03460	-.11440	.00370
4.010	3.620	1.09000	.03020	-.06590	.00850	.02000	-.00580	.00770	-.03460	-.12060	.01570
	GRADIENT	-.00130	-.00073	-.00104	.00409	-.00315	.00009	.00348	-.00094	-.00057	.00306

IA190A, GH2 PRESSURE LINE, RAMPS ON

(R3UD79) (03 APR 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LRZF = .0000 INCHES YMRP = .0000 IN. YT
 BRZF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
 OB-ELV = .000

RUN NO. 65/ 0 RN/L = 3.04 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-4.120	-4.050	1.25000	-.01250	-.02850	-.02600	.01460	.00470	-.02080	-.09490	-.01880	-.01930
-4.050	-.210	1.23000	.00070	-.01650	-.01440	.01660	.00870	-.00660	-.11400	-.01500	-.01100
-4.030	3.610	1.25000	-.00070	-.01580	.00010	.00250	.00510	.00390	-.11840	-.01520	.00150
	GRADIENT	-.00000	.00154	.00166	.00341	-.00158	.00005	.00322	-.00307	.00047	.00271

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190A

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(R3UD79) (03 APR 80)
IA190A, GH2 PRESSURE LINE, RAMPS ON

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.250 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 66/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-.060
.000
.000ALPHA
-3.980
-2.210
3.650
GRADIENT
MACH 1.25000
1.26000
1.26000
1.25000
-.00132
CNB6 .00920
.00650
.02080
.00153
CYB6 -.05640
-.07300
-.05660
-.00001
CAB6 -.02690
-.01780
.00380
.00403
CNB7 .02410
.01630
.00640
-.00232
CYB7 -.00310
-.00500
-.01010
-.00092
CAB7 -.01970
-.00760
.00600
.00337
CNB8 -.06450
-.07840
-.08180
-.00226
CYB8 -.01340
-.01020
-.02000
-.00087
CAB8 -.01750
-.00610
.00700
.00321

RUN NO. 67/ 0 RN/L = 3.03 GRADIENT INTERVAL = -5.00/ 5.00

BETA
4.030
4.080
4.010ALPHA
-4.030
-.200
3.600
GRADIENT
MACH 1.25000
1.25000
1.25000
1.25000
.00000
CNB6 .02390
.02830
.02100
-.00038
CYB6 -.07060
-.09160
-.06370
.00090
CAB6 -.02460
-.00670
.00780
.00425
CNB7 .03310
.02550
.01490
-.00238
CYB7 -.00960
-.00540
-.00190
.00101
CAB7 -.01840
-.00470
.00760
.00341
CNB8 -.03490
-.03900
-.04020
-.00070
CYB8 -.10650
-.11210
-.12650
-.00262
CAB8 -.00720
.00390
.01650
.00311

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =.0171 SQ. IN. XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
OB-ELV = .000

RUN NO. 62/ 0 RN/L = 2.95 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-4.130
-4.050
-4.030ALPHA
-3.970
-.230
3.650
GRADIENT
MACH 1.40000
1.40000
1.40000
1.40000
.00000
CNB6 -.01230
-.01230
-.02200
-.00128
CYB6 -.03980
-.02970
-.01200
.00365
CAB6 -.03290
-.01770
-.00460
.00371
CNB7 .00320
.00070
.00080
-.00031
CYB7 .00390
.01050
.01240
.00111
CAB7 -.02340
-.00900
.00320
.00349
CNB8 -.06890
-.10050
-.11680
-.00627
CYB8 -.02790
-.01350
-.01120
.00218
CAB8 -.01500
-.00780
.00030
.00201

RUN NO. 63/ 0 RN/L = 2.91 GRADIENT INTERVAL = -5.00/ 5.00

BETA
-.060
-.010
.000ALPHA
-3.980
-.190
3.660
GRADIENT
MACH 1.40000
1.40000
1.40000
1.40000
.00000
CNB6 -.00130
.00060
.01550
.00220
CYB6 -.03980
-.09080
-.08230
.00008
CAB6 -.02740
-.01400
.00390
.00410
CNB7 .01120
.00560
.00410
-.00093
CYB7 -.00190
-.00230
-.00470
-.00037
CAB7 -.02080
-.00980
.00310
.00313
CNB8 -.05570
-.07580
-.08350
-.00363
CYB8 -.02010
-.01600
-.02220
-.00028
CAB8 -.01410
-.00440
.00720
.00279

(R3UD80) (03 APR 80)
IA190A, GH2 PRESSURE LINE, RAMPS ON

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.400 IB-ELV = 10.000
 DB-ELV = .000

RUN NO. 64/ 0 RN/L = 2.92 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
4.030	-4.040	1.40000	.01290	-.10640	-.02840	.01630	-.00740	-.01820	-.03370	-.10560	-.00620
4.070	-.180	1.40000	.01160	-.10780	-.01050	.01310	-.00420	-.00560	-.03800	-.12100	-.00490
4.010	3.570	1.39000	.01260	-.07090	.00290	.01260	.00000	.00610	-.04060	-.12550	.01650
	GRADIENT	-.00131	-.00004	.00464	.00412	-.00049	.00097	.00319	-.00091	-.00262	.00298

IA190B, L02 TNK CBL TRY + G02 PRESS LN, RAMPS ON (R3VA43) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 517/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.910	-5.990	1.54000	.14130	-.03530	-.01230
-5.910	-4.050	1.54000	.13590	-.03680	-.01820
-5.920	-.510	1.54000	.13780	-.04320	-.02040
-5.880	3.860	1.54000	.16700	-.03930	.00280
-5.860	5.860	1.54000	.17040	-.03900	.01260
	GRADIENT	.00000	.00404	-.00027	.00276

RUN NO. 518/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.920	-5.970	1.54000	.12910	-.03440	-.01180
-3.900	-4.010	1.54000	.12430	-.03740	-.01230
-3.900	-.530	1.54000	.13160	-.03670	-.00540
-3.910	3.790	1.54000	.17180	-.04060	.01680
-3.910	5.790	1.54000	.18770	-.04140	.02310
	GRADIENT	.00000	.00622	-.00043	.00379

RUN NO. 519/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.040	-5.890	1.54000	.08370	-.03270	.01000
-.030	-3.880	1.54000	.08740	-.04140	.01410
-.020	-.320	1.54000	.12800	-.04930	.02870
-.010	4.160	1.54000	.19230	-.05560	.03740
.000	6.130	1.54000	.22030	-.05300	.03680
	GRADIENT	-.00000	.01310	-.00175	.00286

RUN NO. 520/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.780	-5.940	1.54000	.03490	-.04400	.01510
3.790	-3.980	1.54000	.05970	-.04720	.02500
3.750	-.500	1.54000	.11560	-.05570	.03660
3.830	3.750	1.54000	.19680	-.04820	.03580
3.860	5.730	1.54000	.22660	-.04990	.03790
	GRADIENT	-.00000	.01779	-.00006	.00134

IA1908,LO2 TNK CBL TRY + G02 PRESS LN, RAMPS ON (R3VA43) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 521/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.740	-6.010	1.54000	.00630	-.05000	.01980
5.760	-4.040	1.54000	.03400	-.05010	.02830
5.750	-.510	1.54000	.12020	-.04670	.04070
5.800	3.780	1.54000	.21480	-.04740	.04170
5.820	5.770	1.54000	.24710	-.05660	.04620
	GRADIENT	.00000	.02308	.00033	.00166

IA1908,LO2 TNK CBL TRY + G02 PRESS LN, RAMPS ON (R3VA44) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 522/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.900	-5.990	2.00000	.15720	-.01050	.02980
-5.900	-4.050	2.00000	.13830	-.02460	.02050
-5.910	-.510	2.00000	.12120	-.03300	.00810
-5.880	3.860	2.00000	.13420	-.02820	.01970
-5.860	5.860	2.00000	.14260	-.02830	.02550
	GRADIENT	.00000	-.00038	-.00040	.00000

RUN NO. 523/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.920	-5.970	2.00000	.14950	-.01940	.02500
-3.900	-4.000	2.00000	.13300	-.02650	.01640
-3.900	-.530	2.00000	.12590	-.02750	.01740
-3.910	3.780	2.00000	.14060	-.02620	.02300
-3.910	5.790	2.00000	.16610	-.03110	.03250
	GRADIENT	.00000	.00107	.00004	.00087

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA1908

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IA1908,L02 TNK CBL TRY + G02 PRESS LN, RAMPS ON

(R3VA44) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP =
.0000 INCHES YMRP =
.0000 INCHES ZMRP =
.0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 524/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.040	-5.890	2.00000	.11700	-.02740	.03220
-.030	-3.880	2.00000	.11260	-.03120	.03140
-.020	-.320	2.00000	.12980	-.03380	.03890
-.010	4.150	2.00000	.15820	-.04460	.04390
.000	6.130	2.00000	.17280	-.04380	.04590
	GRADIENT	.00000	.00570	-.00170	.00154

RUN NO. 525/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.780	-5.940	2.00000	.08890	-.03510	.03300
3.750	-3.980	2.00000	.09370	-.03750	.03270
3.750	-.500	2.00000	.11650	-.04070	.03880
3.830	3.750	2.00000	.14330	-.04010	.03940
3.860	5.730	2.00000	.16370	-.04710	.04130
	GRADIENT	.00000	.00641	-.00032	.00084

RUN NO. 526/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.740	-6.010	2.00000	.07810	-.03920	.03060
5.760	-4.040	2.00000	.08180	-.04080	.03470
5.760	-.510	2.00000	.11100	-.03670	.03390
5.800	3.780	2.00000	.14460	-.04200	.04230
5.820	5.770	2.00000	.17530	-.04770	.05060
	GRADIENT	.00000	.00802	-.00019	.00101

IA1908.L02 TNK CBL TRY + G02 PRESS LN, RAMPS ON (R3VA45) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 527/ 0 RN/L = 3.08 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.900	-5.990	2.50000	.17050	-.00720	.02500
-5.900	-4.050	2.50000	.13570	-.02190	.01570
-5.910	-.510	2.50000	.10620	-.02730	.01410
-5.880	3.850	2.50000	.10200	-.02400	.02400
-5.860	5.850	2.50000	.10390	-.02170	.02720
	GRADIENT	.00000	-.00414	-.00023	.00110

RUN NO. 528/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.920	-5.970	2.50000	.14380	-.01460	.01970
-3.900	-4.000	2.50000	.12400	-.02130	.01680
-3.900	-.530	2.50000	.10620	-.02690	.02150
-3.910	3.780	2.50000	.10490	-.02090	.02620
-3.910	5.780	2.50000	.11050	-.02260	.03150
	GRADIENT	.00000	-.00237	.00010	.00120

RUN NO. 529/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.040	-5.890	2.50000	.10330	-.02440	.03080
-.030	-3.880	2.50000	.09630	-.02780	.03530
-.020	-.320	2.50000	.09710	-.02910	.04440
-.010	4.150	2.50000	.11740	-.03220	.04500
.000	6.130	2.50000	.12230	-.03460	.04570
	GRADIENT	.00000	.00271	-.00055	.00116

RUN NO. 530/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.780	-5.940	2.50000	.07960	-.02990	.03730
3.790	-3.980	2.50000	.07730	-.03300	.04100
3.750	-.500	2.50000	.09230	-.03290	.04410
3.830	3.750	2.50000	.10300	-.02920	.04060
3.860	5.730	2.50000	.11510	-.03330	.04400
	GRADIENT	-.00000	.00330	.00051	-.00008

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B,102 TNK CBL TRY + G02 PRESS LN, RAMPS ON

(R3VA45) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =.0171 SQ. IN
.0000 INCHES
.0000 INCHES
.0300XMRP =
YMRP =
ZMRP =.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 531/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.740	-6.000	2.50000	.06820	-.03320	.03610
5.760	-4.040	2.50000	.07370	-.03410	.04070
5.760	-.510	2.50000	.08520	-.03310	.04290
5.800	3.780	2.50000	.10360	-.03070	.04210
5.810	5.770	2.50000	.12350	-.03430	.04840
	GRADIENT	.00000	.00384	.00044	.00017

IA190B,102 TNK CBL TRY + G02 PRESS LN, RAMPS OFF

(R3VA46) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =.0171 SQ. IN
.0000 INCHES
.0000 INCHES
.0300XMRP =
YMRP =
ZMRP =.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 533/ 0 RN/L = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.900	-5.990	1.54000	.10840	.01670	.01880
-5.900	-4.050	1.54000	.10090	.01170	.00800
-5.910	-.510	1.54000	.08460	.00780	-.00170
-5.880	3.860	1.54000	.10120	.00580	.01510
-5.860	5.860	1.54000	.10750	.00920	.02470
	GRADIENT	.00000	.00018	-.00073	.00101

RUN NO. 534/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.910	-5.930	1.54000	.07850	.01100	.01230
-3.900	-4.000	1.54000	.07140	.01350	.01010
-3.900	-.530	1.54000	.07820	.01260	.00840
-3.910	3.780	1.54000	.11500	.00600	.03040
-3.910	5.790	1.54000	.13230	.00410	.03590
	GRADIENT	.00000	.00572	-.00099	.00271

IA1908,L02 TNK CBL TRY + G02 PRESS LN, RAMPS OFF (R3VA46) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 535/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.040	-5.880	1.54000	.05260	-.00500	.02190
-.030	-3.880	1.54000	.05800	-.01840	.02260
-.020	-.320	1.54000	.09310	-.02690	.03690
-.010	4.150	1.54000	.16390	-.04240	.04770
.000	6.130	1.54000	.18730	-.05100	.04930
	GRADIENT	-.00000	.01330	-.00301	.00310

RUN NO. 536/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.780	-5.940	1.54000	.01300	-.03950	.02740
3.790	-3.980	1.54000	.04740	-.04720	.03830
3.750	-.500	1.54000	.12250	-.06710	.04930
3.830	3.750	1.54000	.19960	-.08380	.05120
3.860	5.730	1.54000	.24400	-.10190	.05370
	GRADIENT	-.00000	.01963	-.00471	.00162

RUN NO. 537/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.730	-6.000	1.54000	.01700	-.06470	.03450
5.760	-4.040	1.54000	.06040	-.07810	.04680
5.760	-.510	1.54000	.15470	-.10420	.05750
5.800	3.780	1.54000	.26740	-.13890	.06320
5.810	5.770	1.54000	.31380	-.16410	.07010
	GRADIENT	.00000	.02646	-.00779	.00207

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B.L02 TNK CBL TRY + G02 PRESS LN, RAMPS OFF (R3VA47) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 DB-ELV = -5.000

RUN NO. 539/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.910	-5.990	2.00000	.13160	.03180	.04210
-5.910	-4.050	2.00000	.11300	.01810	.03500
-5.920	-.510	2.00000	.09280	.00210	.01270
-5.880	3.850	2.00000	.09250	.00950	.02420
-5.860	5.850	2.00000	.10100	.01170	.03230
	GRADIENT	.00000	-.00250	-.00098	-.00121

RUN NO. 540/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.910	-5.930	2.00000	.10950	.02250	.04090
-3.900	-4.000	2.00000	.09730	.01610	.02920
-3.900	-.530	2.00000	.09120	.01150	.02230
-3.910	3.780	2.00000	.09870	.01060	.03260
-3.910	5.780	2.00000	.11860	.00590	.04330
	GRADIENT	.00000	.00024	-.00069	.00051

RUN NO. 541/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.050	-5.850	2.00000	.08340	.01080	.04220
-.030	-3.880	2.00000	.08330	.00460	.03700
-.020	-.320	2.00000	.09720	-.00550	.04380
-.010	4.150	2.00000	.12360	-.02000	.05150
.000	6.130	2.00000	.14810	-.02560	.05330
	GRADIENT	.00000	.00506	-.00307	.00180

RUN NO. 542/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.780	-5.930	2.00000	.07460	-.00460	.03900
3.790	-3.970	2.00000	.08190	-.01460	.04440
3.750	-.500	2.00000	.11020	-.03310	.04770
3.830	3.740	2.00000	.15400	-.04570	.05340
3.860	5.730	2.00000	.18340	-.05920	.05500
	GRADIENT	.00000	.00939	-.00399	.00117

IA1908,L02 TNK CBL TRY + G02 PRESS LN, RAMPS OFF (R3VA47) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 543/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.730	-6.000	2.00000	.06570	-.02010	.04100
5.760	-4.040	2.00000	.07790	-.03290	.04780
5.750	-.510	2.00000	.13610	-.04810	.05320
5.800	3.780	2.00000	.21130	-.08760	.06340
5.820	5.770	2.00000	.25580	-.10840	.07210
	GRADIENT	.00000	.01708	-.00707	.00201

IA1908,L02 TNK CBL TRY + G02 PRESS LN, RAMPS OFF (R3VA48) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 545/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.900	-5.990	2.50000	.12990	.03110	.03720
-5.900	-4.050	2.50000	.10410	.01170	.02840
-5.910	-.510	2.50000	.07880	-.00080	.01720
-5.880	3.850	2.50000	.06880	.00180	.02410
-5.860	5.850	2.50000	.06830	.00690	.02760
	GRADIENT	.00000	-.00439	-.00118	-.00046

RUN NO. 546/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.910	-5.930	2.50000	.09760	.02120	.03410
-3.900	-4.000	2.50000	.08490	.01560	.02660
-3.900	-.530	2.50000	.07480	.00170	.02580
-3.910	3.780	2.50000	.06420	.00540	.03150
-3.910	5.780	2.50000	.07450	.00200	.03690
	GRADIENT	.00000	-.00265	-.00122	.00066

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA1908

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IA1908,LO2 TNK CBL TRY + G02 PRESS LN, RAMPS OFF

(R3VA48) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
LREF = .0000 INCHES YMRP = .0000 IN. YT
BREF = .0000 INCHES ZMRP = .0000 IN. ZT
SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 547/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.050	-5.850	2.50000	.07040	.01390	.04010
-.030	-3.880	2.50000	.06680	.00770	.04080
-.020	-.320	2.50000	.07010	-.00060	.04920
-.010	4.150	2.50000	.08940	-.00970	.05180
.000	6.130	2.50000	.10020	-.01650	.05230
	GRADIENT	.00000	.00288	-.00216	.00134

RUN NO. 548/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.780	-5.930	2.50000	.06210	-.00320	.04080
3.790	-3.970	2.50000	.06720	-.00960	.04840
3.750	-.500	2.50000	.07990	-.02280	.05260
3.830	3.740	2.50000	.11590	-.03450	.05440
3.860	5.730	2.50000	.14060	-.04440	.05700
	GRADIENT	-.00000	.00640	-.00321	.00077

RUN NO. 549/ 0 RN/L = 3.05 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.740	-6.000	2.50000	.05640	-.01530	.04600
5.760	-4.040	2.50000	.05840	-.02320	.05290
5.760	-.510	2.50000	.08910	-.03910	.05670
5.800	3.780	2.50000	.16130	-.06400	.06380
5.810	5.770	2.50000	.19260	-.07990	.07000
	GRADIENT	.00000	.01329	-.00524	.00140

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B,L02 TNK CBL TRY + G02 PRESS LN, RAMPS OFF (R3VA49) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. VT
 ZMRP = .0000 IN. ZT

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 538/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB1	CYB1	CAB1
-.320	-5.910	1.54000	.09370	.01030	.00000
-.330	-3.880	1.54000	.08320	.01400	.01010
-.350	.100	1.54000	.10040	-.02670	.03870
-.380	4.190	1.54000	.13620	-.07160	.05020
-.380	6.190	1.54000	.16910	-.11350	.05920
	GRADIENT	-.00000	.00658	-.01061	.00496

IA190B,L02 TNK CBL TRY + G02 PRESS LN, RAMPS OFF (R3VA50) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. VT
 ZMRP = .0000 IN. ZT

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 544/ 0 RN/L = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB1	CYB1	CAB1
-.320	-5.910	2.00000	.09100	.00330	.01120
-.340	-3.890	2.00000	.08880	.01120	.02230
-.340	.100	2.00000	.09730	-.00270	.04460
-.380	4.190	2.00000	.11550	-.03400	.04960
-.380	6.190	2.00000	.14390	-.05220	.05630
	GRADIENT	.00000	.00331	-.00560	.00337

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B,L02 TNK CBL TRY + G02 PRESS LN, RAMPS OFF

(R3VA51) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 550/ 0 RN/L = 3.05 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB1	CYB1	CAB1
-.320	-5.910	2.50000	.07900	.00160	.02340
-.330	-3.890	2.50000	.07620	.00480	.03120
-.350	.100	2.50000	.07440	.00000	.05390
-.380	4.190	2.50000	.08910	-.02500	.05600
-.380	6.190	2.50000	.10060	-.04090	.06010
	GRADIENT	-.00000	.00160	-.00370	.00306

IA190B,L02 TNK CBL TRY,G02 PRES,RAMPS ON + OIL

(R3VA52) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 552/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.910	-5.990	1.54000	.14790	-.02560	-.00760
-5.920	-.510	1.54000	.12540	-.03030	-.02270
-5.860	5.850	1.54000	.17660	-.03320	.01600
	GRADIENT	.00000	.00000	.00000	.00000

RUN NO. 553/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.920	-5.970	1.54000	.13660	-.02850	-.00760
-3.900	-4.000	1.54000	.12890	-.03110	-.00810
-3.900	-.530	1.54000	.13690	-.02970	.00090
-3.910	3.780	1.54000	.17970	-.03440	.01890
	GRADIENT	.00000	.00666	-.00045	.00350

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA1908

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IA1908.L02 TNK CBL TRY.G02 PRES,RAMPS ON + OIL

(R3VA52) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN
.0000 INCHES
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

MACH =
IB-ELV =

1.550 Q(PSF) = 600.000
8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 554/ 0 RN/L = 2.77 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.030	-5.890	1.54000	.09070	-.03000	.01170
-.030	-3.880	1.54000	.09010	-.03500	.01340
-.020	-.330	1.54000	.13180	-.04490	.02770
-.010	4.150	1.54000	.20080	-.05170	.03940
.000	6.130	1.54000	.22260	-.04890	.03590
	GRADIENT	-.00000	.01386	-.00206	.00321

RUN NO. 555/ 0 RN/L = 2.77 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.760	-3.960	1.54000	.05590	-.03910	.02310
3.750	-.500	1.54000	.12180	-.04980	.03580
3.830	3.740	1.54000	.20000	-.04270	.03650
	GRADIENT	-.00000	.01870	-.00039	.00168

RUN NO. 556/ 0 RN/L = 2.76 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.740	-6.010	1.54000	-.00330	-.04270	.01950
5.760	-.510	1.54000	.12740	-.04290	.04070
5.810	5.770	1.54000	.24920	-.05140	.04370
	GRADIENT	.00000	.00000	.00000	.00000

IA190B,L02 TNK CBL TRY,G02 PRES,RAMPS ON + OIL

(R3VA53) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 557/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.910	-5.990	2.00000	.16640	-.01250	.02450
-5.910	-.510	2.00000	.13300	-.02960	.00540
-5.860	5.850	2.00000	.14100	-.02270	.02010
	GRADIENT	.00000	.00000	.00000	.00000

RUN NO. 558/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.900	-4.000	2.00000	.13800	-.02660	.01350
-3.900	-.530	2.00000	.13430	-.02920	.01790
-3.910	3.780	2.00000	.15360	-.02370	.02370
	GRADIENT	.00000	.00210	.00041	.00131

RUN NO. 559/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.030	-5.890	2.00000	.11670	-.02850	.02870
-.030	-3.880	2.00000	.11680	-.03130	.02650
-.020	-.330	2.00000	.13500	-.03400	.03630
-.010	4.150	2.00000	.16070	-.04190	.04330
.000	6.130	2.00000	.17930	-.04230	.04440
	GRADIENT	.00000	.00547	-.00134	.00207

RUN NO. 560/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.760	-3.960	2.00000	.09120	-.03470	.03080
3.750	-.500	2.00000	.12230	-.03720	.03530
3.830	3.740	2.00000	.14860	-.03850	.03790
	GRADIENT	.00000	.00741	-.00049	.00091

RUN NO. 561/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.740	-6.010	2.00000	.06670	-.03740	.02620
5.760	-.510	2.00000	.11510	-.03550	.03220
5.810	5.770	2.00000	.18190	-.04660	.04980
	GRADIENT	.00000	.00000	.00000	.00000

IA1908.L02 TNK CBL TRY.G02 PRES.RAMPS ON + OIL

(R3VA54) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 562/ 0 RN/L = 3.02 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-5.910	-5.990	2.50000	.17140	-.00410	.01950
-5.910	-.510	2.50000	.11330	-.02650	.01450
-5.860	5.850	2.50000	.10760	-.01660	.02830
	GRADIENT	.00000	.00000	.00000	.00000

RUN NO. 563/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-3.900	-4.000	2.50000	.12750	-.02010	.01500
-3.900	-.530	2.50000	.11050	-.02480	.02160
-3.910	3.780	2.50000	.10760	-.01930	.02510
	GRADIENT	.00000	-.00248	.00015	.00128

RUN NO. 564/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
-.030	-5.890	2.50000	.10650	-.02170	.02900
-.030	-3.880	2.50000	.10130	-.02270	.03490
-.020	-.320	2.50000	.10280	-.02320	.04380
-.010	4.150	2.50000	.12260	-.02980	.04640
.000	6.130	2.50000	.12790	-.03150	.04660
	GRADIENT	.00000	.00273	-.00091	.00140

RUN NO. 565/ 0 RN/L = 3.00 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
3.790	-3.970	2.50000	.08010	-.02940	.04040
3.750	-.500	2.50000	.09630	-.02970	.04380
3.830	3.740	2.50000	.10930	-.02920	.04000
	GRADIENT	-.00000	.00376	.00003	-.00008

RUN NO. 566/ 0 RN/L = 3.00 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB1	CYB1	CAB1
5.730	-6.010	2.50000	.06980	-.03160	.03500
5.750	-.510	2.50000	.09090	-.03000	.04300
5.810	5.760	2.50000	.12690	-.03580	.04950
	GRADIENT	.00000	.00000	.00000	.00000

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS ON (R3VB43) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 517/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-5.910	-5.990	1.54000	-1.10290	-1.12910	.21920	.16200	-.13550	.04280	.19620	.03230	.10940
-5.910	-4.050	1.54000	-1.12600	-1.14120	.21360	.17790	-.15030	.04640	.23750	.06270	.11850
-5.920	-5.10	1.54000	-.09650	-.19870	.20850	.29070	-.12350	.05390	.23260	.04250	.08870
-5.880	3.860	1.54000	.02060	-.14200	.19980	.28650	-.08730	.06660	.21610	-.00630	.06310
-5.860	5.860	1.54000	.08970	-.08410	.19730	.23520	-.06620	.06970	.20410	.00210	.06210
	GRADIENT	.00000	.01885	.00040	-.00175	.01316	.00798	.00257	-.00275	-.00882	-.00696

RUN NO. 518/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-3.920	-5.970	1.54000	-1.19040	-.09770	.21340	.03150	-.20070	.08650	.19490	.02400	.11280
-3.900	-4.010	1.54000	-1.12680	-.07530	.20910	.05920	-.19720	.07900	.19010	.04420	.11580
-3.900	-5.30	1.54000	-.09970	-.08360	.18640	.20170	-.14050	.06900	.18310	.02390	.08280
-3.910	3.790	1.54000	.04080	-.02350	.17770	.24910	-.07930	.07870	.15830	-.02490	.06350
-3.910	5.790	1.54000	.07530	.01580	.18540	.23740	-.06460	.07700	.13240	-.02330	.05850
	GRADIENT	.00000	.02192	.00693	-.00395	.02382	.01508	.00005	-.00414	-.00896	-.00662

RUN NO. 519/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-0.040	-5.890	1.54000	-.03570	.09840	.17240	-.11170	-.11420	.12870	.05490	.06250	.12260
-.030	-3.880	1.54000	.03170	.12930	.17090	-.09570	-.12720	.11320	.03870	.06740	.11850
-.020	-.320	1.54000	.05290	.14150	.17290	-.00450	-.09560	.11670	.04150	.04730	.11140
-.010	4.160	1.54000	.07610	.13830	.17190	.19360	-.03520	.08360	.05190	-.03520	.07340
.000	6.130	1.54000	.12990	.17610	.19130	.20360	-.04170	.07810	.07970	-.00560	.06790
	GRADIENT	-.00000	.00551	.00104	.00011	.03633	.01153	-.00384	.00167	-.01300	-.00573

RUN NO. 520/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
3.780	-5.940	1.54000	.03150	.14990	.12820	-.09200	-.07470	.13330	.04630	.02880	.09070
3.790	-3.980	1.54000	.08550	.17230	.14470	-.05620	-.09090	.13400	.02780	.03880	.09690
3.750	-.500	1.54000	.07740	.20790	.13530	.05280	-.05410	.12440	.09570	-.02840	.10000
3.830	3.750	1.54000	.11600	.20640	.13720	.12000	-.03560	.12850	.04030	-.08900	.11290
3.860	5.730	1.54000	.15050	.22860	.14680	.12980	-.03390	.12930	.05780	-.06210	.11360
	GRADIENT	-.00000	.00413	.00424	-.00092	.02254	.00705	-.00065	.00108	-.01645	.00210

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS ON

(R3VB43) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 521/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
5.740	-6.010	1.54000	.04890	.11400	.06950	.14630	-.08960	-.08130	.11110	.11110	.08130
5.760	-4.040	1.54000	.05830	.11370	.05740	.17010	-.10060	-.02510	.10750	.10750	.09480
5.750	-.510	1.54000	.07360	.09380	.04790	.17860	-.06080	-.08050	.13080	.13080	.12600
5.800	3.780	1.54000	.10670	.10690	.07050	.17070	.03500	-.09230	.16190	.16190	.10760
5.820	5.770	1.54000	.09290	.12550	.07270	.18220	-.03030	-.09390	.11980	.11980	.08480
	GRADIENT	.00000	.00624	.03006	.00180	.00001	.01752	-.00839	.00697	.00697	.00143

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS ON

(R3VB44) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 522/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-5.900	-5.990	2.00000	-.12440	.19930	.13670	-.09030	-.09090	.04400	.12470	.04700	.02400
-5.900	-4.050	2.00000	-.07470	.12790	.13290	-.04260	-.07750	.03210	.12790	.05500	.02200
-5.910	-.510	2.00000	.01390	.23710	.17110	-.04060	-.05470	-.05520	.14220	.07870	.04090
-5.880	3.860	2.00000	.10530	.25890	.24030	-.08910	-.00360	.10870	.15890	.10870	.06470
-5.860	5.860	2.00000	.13990	.28030	.25840	-.07690	.01780	.11230	.16650	.12030	.06150
	GRADIENT	.00000	.02269	.00532	.01366	-.00608	.00943	-.01806	.00392	.00679	.00540

RUN NO. 523/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-3.920	-5.970	2.00000	-.11550	.14800	.13200	-.02100	-.09290	-.00140	.12000	.05920	.03450
-3.900	-4.000	2.00000	-.08860	.18530	.13260	-.00900	-.08270	-.04500	.11680	.06800	.03470
-3.900	-.530	2.00000	.03280	.21460	.15920	-.00650	-.03990	-.09190	.12660	.15920	.04620
-3.910	3.780	2.00000	.10870	.24850	.20390	-.06690	-.00200	-.11220	.15130	.10490	.05030
-3.910	5.790	2.00000	.09070	.26440	.21860	-.00580	.01770	-.14420	.14760	.11580	.05770
	GRADIENT	.00000	.02505	.00811	.00921	-.00770	.01031	-.00848	.00449	.00467	.00196

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

PAGE 65

IA190B, LH2 TK C.T. + G02 PRESS + LO2AG, RAMPS CN

(R3VB44) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 524/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-0.040	-5.890	2.00000	-0.04160	.12030	.11340	.03110	-.06400	.11350	.04660	-.08060	.07350
-.030	-3.880	2.00000	-0.11440	.10150	.12530	.10200	-.03400	.10650	.05070	-.09050	.06930
-.020	-.320	2.00000	.08000	.08340	.13810	.18450	.02200	.10670	.11890	-.09850	.05760
-.010	4.160	2.00000	.08950	.10730	.13010	.22600	.03530	.11470	.10680	-.09530	.06700
.000	6.130	2.00000	.11230	.16020	.13550	.23620	.03700	.11850	.13330	-.11220	.06800
GRADIENT		.00000	.01247	.00092	.00050	.01516	.00838	.00105	.00657	-.00054	-.00019

RUN NO. 525/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
3.780	-5.940	2.00000	.04450	.15980	.11480	-.00480	-.01650	.14080	.03220	-.06710	.07760
3.790	-3.980	2.00000	.10070	.17540	.12450	.05250	.01320	.13770	.01250	-.08730	.08080
3.750	-.500	2.00000	.10800	.21100	.13390	.11960	.02660	.12640	.05480	-.09050	.06410
3.830	3.750	2.00000	.13890	.21120	.12900	.16300	.04310	.13160	.06440	-.08040	.08260
3.860	5.730	2.00000	.09490	.17020	.12950	.21040	.05960	.12860	.05810	-.06700	.09180
GRADIENT		.00000	.00503	.00446	.00052	.01415	.00387	-.00072	.00655	.00095	.00038

RUN NO. 526/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
5.740	-6.010	2.00000	.09090	.19570	.10750	-.01270	-.00340	.13720	.00650	-.08900	.08290
5.760	-4.040	2.00000	.10030	.22120	.11410	.03470	.00820	.14060	-.00560	-.09400	.09020
5.760	-.510	2.00000	.13110	.22140	.10610	.07400	.05720	.15850	-.04180	-.12270	.09980
5.800	3.780	2.00000	.09910	.13130	.10330	.19850	.06760	.14590	.04790	-.06370	.09810
5.820	5.770	2.00000	.06820	.13100	.10320	.21830	.04830	.13130	.09020	-.06690	.08650
GRADIENT		.00000	-.00041	-.01183	-.00136	.02123	.00741	.00055	.00734	.00422	.00096

IA190B.LH2 TK C.T. + G02 PRESS + L02AG,RAMPS ON

(R3VB45) (29 AUG 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH =
IB-ELV =
Q(PSF) = 600.000
DB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 527/ 0 RN/L = 3.08 GRADIENT INTERVAL = -5.00/ 5.00											
BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-5.900	-5.990	2.50000	-.10360	-.06320	.07310	.21540	-.04990	.06520	.14260	-.03330	.03980
-5.900	-4.050	2.50000	-.08460	-.04120	.07290	.20750	-.02360	.07710	.15320	-.06360	.04410
-5.910	-.510	2.50000	.04420	.04290	.09000	.20000	.00920	.09100	.15570	-.06720	.04320
-5.880	3.850	2.50000	.10610	.03650	.11470	.19150	.01730	.10910	.17330	-.06870	.06060
-5.860	5.850	2.50000	.09870	.00240	.13600	.21540	.03050	.10810	.19380	-.08890	.06480
	GRADIENT	.00000	.02376	.00941	.00531	-.00202	.00505	.00405	.00260	-.00063	.00216
RUN NO. 528/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00											
BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-3.920	-5.970	2.50000	-.11630	.02660	.07720	.17810	-.04190	.07370	.12510	-.05200	.03910
-3.900	-4.000	2.50000	-.10630	-.00570	.06460	.16800	-.01400	.09110	.14360	-.07890	.04220
-3.900	-.530	2.50000	-.06980	.01490	.07530	.17590	.01070	.10660	.14760	-.08570	.05780
-3.910	3.780	2.50000	.08580	.02440	.11970	.18740	.03360	.10450	.15520	-.07370	.06070
-3.910	5.780	2.50000	.07380	-.04010	.14820	.20120	.04180	.10900	.17540	-.08550	.06380
	GRADIENT	.00000	.02528	.00380	.00721	.00250	.00609	.00163	.00150	.00075	.00231
RUN NO. 529/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00											
BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-.040	-5.890	2.50000	-.04900	.07620	.04760	.09430	.00700	.11140	.12110	-.06200	.03700
-.030	-3.880	2.50000	-.04510	.07790	.05360	.12200	.03970	.11400	.12700	-.06370	.04840
-.020	-.320	2.50000	.03990	.07170	.08540	.16360	.05950	.11380	.11060	-.05530	.06390
-.010	4.150	2.50000	.01550	-.01010	.12890	.14960	.04960	.11280	.10370	-.01490	.07400
.000	6.130	2.50000	.06130	.05990	.14600	.17740	.05300	.11180	.10030	-.04690	.07630
	GRADIENT	.00000	.00700	-.01127	.00939	.00316	.00109	-.00015	-.00284	.00620	.00315
RUN NO. 530/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00											
BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
3.780	-5.940	2.50000	.04160	.10570	.06120	.05640	.06710	.14440	.04300	-.08910	.05400
3.790	-3.980	2.50000	.02820	.08690	.08420	.08420	.07540	.14340	.08100	-.08560	.06110
3.750	-.500	2.50000	.00720	.05440	.12620	.13750	.10330	.14210	.06200	-.04360	.08160
3.830	3.750	2.50000	.09600	.07720	.13690	.12770	.09520	.13400	.08180	-.02340	.08140
3.860	5.730	2.50000	.12060	.12670	.16210	.15940	.09700	.12930	.04560	-.03190	.09710
	GRADIENT	-.00000	.00921	-.00101	.00666	.00534	.00240	-.00124	.00027	.00793	.00253

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS ON

(R3VB45) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 DB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 531/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
5.740	-6.000	2.50000	.00290	.05650	.01270	.10200	.07030	-.08910	.07310	.14170	-.06660
5.760	-4.040	2.50000	-.00850	.07980	.05470	.07980	.09500	-.08230	.09220	.14880	-.07250
5.760	-.510	2.50000	.06140	.14750	.07020	.04630	.10500	-.05200	.11550	.13850	-.07960
5.800	3.780	2.50000	.11740	.14530	.05950	.04670	.14890	-.02850	.14710	.14840	.10010
5.810	5.770	2.50000	.15370	.15320	.02550	.09630	.15290	-.04200	.13360	.15290	.10750
	GRADIENT	.00000	.01599	.00582	.00050	-.00408	.00701	.00683	.00703	.00003	.00357

IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF

(R3VB46) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 DB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 533/ 0 RN/L = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-5.900	-5.990	1.54000	-.15450	.28460	.14380	-.15310	-.23960	.05910	.20300	.04670	.06830
-5.900	-4.050	1.54000	-.14480	.31610	.14080	-.15120	-.24590	.08760	.19790	.04830	.07540
-5.910	-.510	1.54000	-.12710	.43470	.18670	-.19850	-.22240	.04240	.19260	.05580	.04550
-5.880	3.860	1.54000	.02070	.34930	.24320	-.15020	-.13910	-.05990	.18000	.06710	.02810
-5.860	5.860	1.54000	.05290	.30610	.22920	-.09770	-.11490	-.05330	.17860	.07190	.02820
	GRADIENT	.00000	.02142	.00328	.01295	.00055	.01372	-.01883	-.00229	.00238	-.00590

RUN NO. 534/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-3.910	-5.930	1.54000	-.18060	.14040	.11400	-.06030	-.26860	.05070	.19810	.08310	.07470
-3.900	-4.000	1.54000	-.16960	.16640	.10190	-.02640	-.25730	.06090	.19300	.06850	.06760
-3.900	-.530	1.54000	-.14660	.27020	.17270	-.06890	-.19990	.01050	.17830	.07260	.03660
-3.910	3.780	1.54000	-.04840	.23520	.18750	.00820	-.09900	-.05010	.16970	.08340	.01700
-3.910	5.790	1.54000	-.02550	.22890	.13900	.04220	-.07760	-.04670	.17790	.08150	.01930
	GRADIENT	.00000	.01586	.00817	.01070	.00498	.02047	-.01426	-.00296	.00194	-.00643

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

(R3VB46) (29 AUG 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH =
IB-ELV =

1.550 Q(PSF) = 600.000
8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 535/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-.040	-5.880	1.54000	-.10920	.04310	-.08460	.15700	-.15070	.08020	.16160	.10800	.08470
-.030	-3.880	1.54000	-.09410	.04120	-.09900	.18760	-.18030	.08850	.15920	.10530	.07860
-.020	-.320	1.54000	-.07490	.01930	.01640	.19280	-.11480	.02690	.16010	.11360	.07100
-.010	4.150	1.54000	-.09230	.12790	.09480	.20800	-.03540	-.06700	.15900	.08830	.04120
.000	6.130	1.54000	-.10440	.15570	.09640	.27230	-.04510	-.03000	.17900	.07820	.02860
	GRADIENT	-.00000	.00005	.01136	.02386	.00258	.01803	-.01943	-.00003	-.00227	-.00474

RUN NO. 536/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
3.780	-5.540	1.54000	-.10370	.05090	.01660	.19270	-.11790	.02690	.11160	.11610	.05140
3.790	-3.980	1.54000	-.09250	.08840	.04870	.23340	-.12920	.02530	.12300	.11770	.05850
3.750	-.500	1.54000	-.10640	.07640	.11020	.27590	-.07350	-.03840	.12650	.12600	.06680
3.830	3.750	1.54000	-.07170	.07440	.09540	.27100	-.04230	-.11570	.14340	.12320	.06940
3.860	5.730	1.54000	-.10480	.09230	.09900	.31490	-.06680	-.09390	.15080	.11500	.07440
	GRADIENT	-.00000	.00289	-.00176	.00569	.00465	.01110	-.01824	.00269	.00066	.00138

RUN NO. 537/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
5.730	-6.000	1.54000	-.11730	.05490	.09860	.18770	-.13110	-.05360	.09190	.11170	.05560
5.760	-4.040	1.54000	-.13500	.05700	.10280	.23170	-.13930	-.07540	.09840	.10260	.06600
5.760	-.510	1.54000	-.09090	.00730	.08300	.25570	-.08710	-.11070	.09310	.13010	.09730
5.800	3.780	1.54000	-.08890	.10970	.09920	.24560	.03630	-.10230	.10610	.16400	.07140
5.810	5.770	1.54000	-.16810	.19910	.12150	.27740	-.04990	-.10230	.12360	.11080	.05060
	GRADIENT	.00000	.00570	.00735	-.00031	.00163	.02268	-.00325	.00106	.00785	.00045

IA1908.LH2 TK C.T. + GD2 PRESS + L02AG,RAMPS OFF

(R3VB47) (29 AUG 80)

REFERENCE DATA

SREF =	.0171 SQ. IN	XMRP =	.0000 IN.	XT		MACH =	2.000	Q(PSF) =	600.000
LREF =	.0000 INCHES	YMRP =	.0000 IN.	YT		IB-ELV =	8.000	OB-ELV =	-5.000
BREF =	.0000 INCHES	ZMRP =	.0000 IN.	ZT					
SCALE =	.0300								

PARAMETRIC DATA

GRADIENT INTERVAL = -5.00/ 5.00											
BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-5.910	-5.990	2.00000	- .08550	- .11370	.11330	.30210	- .16400	.04650	.13630	.03040	- .03170
-5.910	-4.050	2.00000	.02770	- .08430	.12380	.27640	- .14280	.05120	.14070	.00860	- .02550
-5.920	-5.10	2.00000	.07220	- .09920	.13690	.25050	- .08560	.07850	.20580	-	- .00150
-5.880	3.850	2.00000	.15530	- .12890	.14820	.24030	- .03810	.11220	.26080	- .14210	.01510
-5.860	5.850	2.00000	.16850	- .10010	.15480	.23420	.00930	.12760	.31510	- .15370	.01700
	GRADIENT	.00000	.01626	- .00569	.00307	- .00448	.01316	.00772	.01510	- .01891	.00509
GRADIENT INTERVAL = -5.00/ 5.00											
BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-3.910	-5.930	2.00000	- .00550	- .03390	.11530	.19730	- .14160	.06260	.15500	- .01990	- .01300
-3.900	-4.000	2.00000	.00820	- .05570	.12550	.18140	- .10730	.07170	.18140	- .05840	- .00150
-3.900	-5.30	2.00000	.06220	- .06540	.13050	.18520	- .05810	.09070	.18210	- .10870	.00600
-3.910	3.780	2.00000	.09900	- .07870	.14460	.20280	- .01860	.11150	.21850	- .13210	.01520
-3.910	5.780	2.00000	.05370	- .01560	.13840	.19660	.03350	.12960	.27290	- .16380	.02650
	GRADIENT	.00000	.01155	- .00296	.00249	.00280	.01131	.00510	.00491	- .00931	.00215
GRADIENT INTERVAL = -5.00/ 5.00											
BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-0.050	-5.850	2.00000	- .01240	.08800	.11680	.02310	- .08680	.12170	.11560	- .10720	.03820
-0.030	-3.880	2.00000	- .04140	.10140	.12360	.02490	- .02620	.12610	.11990	- .12390	.03110
-0.020	-3.20	2.00000	- .01060	.10830	.13130	.07030	.02790	.11580	.13390	- .11380	.01960
-0.010	4.150	2.00000	- .11680	.17020	.12750	.08990	.06040	.12380	.11350	- .11540	.03720
.000	6.130	2.00000	- .09810	.22940	.13760	.08780	.08310	.12550	.15570	- .13200	.04120
	GRADIENT	.00000	- .00999	.00879	.00043	.00794	.01064	- .00020	- .00095	.00100	.00089
GRADIENT INTERVAL = -5.00/ 5.00											
BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
3.780	-5.930	2.00000	- .07100	.18630	.10780	.00710	- .03620	.14730	.07910	- .08890	.04970
3.790	-3.970	2.00000	- .08470	.21990	.11820	- .01680	.01610	.15360	.06930	- .10730	.05080
3.750	-5.00	2.00000	- .11600	.28080	.12840	.01090	.05360	.14080	.07380	- .11740	.03130
3.830	3.740	2.00000	- .06020	.27260	.12550	.00300	.07470	.14270	.07820	- .10220	.05590
3.860	5.730	2.00000	- .10230	.25200	.12970	.09790	.08820	.13030	.07870	- .07710	.05990
	GRADIENT	.00000	.00354	.00652	.00089	.00241	.00750	- .00135	.00235	.00077	.00085

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B, LH2 1K C.T. + G02 PRESS + L02AG, RAMPS OFF (R3VB47) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 543/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
5.730	-6.000	2.00000	-.07720	.24200	.10110	.00110	-.02140	.15000	.05500	-.09890	.06430
5.760	-4.040	2.00000	-.11990	.27910	.10660	-.02870	.02090	.15280	.05340	-.12580	.06440
5.750	-.510	2.00000	-.06020	.28280	.09560	-.11610	.10000	.18480	.05580	-.14930	.07070
5.800	3.780	2.00000	-.09410	.19610	.10170	.11160	.10450	.14940	.07640	-.06360	.06600
5.820	5.770	2.00000	-.14210	.18060	.10580	.17490	.07720	.13350	.10670	-.06530	.05770
	GRADIENT	.00000	.00290	-.01095	-.00055	.01919	.01035	-.00071	.00301	.00838	.00016

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

(R3VB48) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 545/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-5.900	-5.990	2.50000	-.11500	-.07180	.06930	.21740	-.07940	.06610	.16720	-.04840	.02020
-5.900	-4.050	2.50000	-.05320	-.08150	.06940	.19740	-.05320	.08440	.17140	-.06520	.02440
-5.910	-.510	2.50000	.16080	-.06140	.08810	.13000	-.00590	.09570	.15530	-.06530	.03070
-5.880	3.850	2.50000	.21540	-.11180	.13840	.14780	-.00910	.10930	.15340	-.06530	.03590
-5.860	5.850	2.50000	.17090	-.11050	.15130	.15570	.00890	.10930	.19370	-.08200	.04610
	GRADIENT	.00000	.03318	-.00413	.00884	-.00588	.00534	.00315	-.00221	-.00001	.00145

RUN NO. 546/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-3.910	-5.930	2.50000	-.05590	-.00370	.07450	.14400	-.06820	.07560	.14130	-.05690	.01100
-3.900	-4.000	2.50000	-.01670	-.06620	.06330	.12420	-.04370	.08760	.12350	-.07380	.02160
-3.900	-.530	2.50000	.08740	-.05520	.07320	.09830	.00210	.11140	.11520	-.06870	.03600
-3.910	3.780	2.50000	.18640	-.11540	.14340	.11600	.02010	.11220	.15140	-.07870	.04110
-3.910	5.780	2.50000	.10700	-.09230	.15100	.13980	.01210	.11390	.16760	-.08040	.03590
	GRADIENT	.00000	.02598	-.00663	.01053	-.00085	.00804	.00304	.00378	-.00070	.00245

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

(R3VB48) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 547/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-0.050	-5.850	2.50000	.02650	.05110	.10540	.05990	.00160	.11460	.05990	.12930	.06370
-0.030	-3.880	2.50000	.05000	.01400	.08670	.05340	.05690	.12930	.05340	.12930	.04520
-0.020	-3.320	2.50000	.11560	.02300	.07800	.10700	.09450	.12190	.10700	.12190	.00830
-0.010	4.150	2.50000	.16070	.06190	.06510	.14020	.06060	.11340	.14020	.11340	.01700
.000	6.130	2.50000	.14960	.12480	.07630	.14740	.08810	.11360	.14740	.11360	.03850
GRADIENT	GRADIENT	.00000	.02773	.00608	.00270	.01067	.00012	.00198	.01067	.00198	.00766

RUN NO. 548/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
3.780	-5.930	2.50000	.06490	.07520	.03530	.07450	.07600	.16220	.07450	.16220	.09740
3.790	-3.970	2.50000	.07790	.08280	.03470	.10520	.10050	.15580	.10520	.15580	.06890
3.750	-5.500	2.50000	.20730	.09900	.05600	.14380	.12840	.14760	.14380	.14760	.02850
3.830	3.740	2.50000	.10720	.12170	.06160	.13750	.13480	.14040	.13750	.14040	.00160
3.860	5.730	2.50000	.11370	.20150	.04800	.15640	.14510	.13370	.15640	.13370	.03520
GRADIENT	GRADIENT	.00000	.00280	.00506	.00341	.00398	.00434	.00199	.00398	.00199	.00864

RUN NO. 549/ 0 RN/L = 3.05 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
5.740	-6.000	2.50000	.13020	.11810	.02300	.09090	.09560	.15580	.09090	.15580	.09070
5.760	-4.040	2.50000	.19390	.11780	.02670	.10580	.10880	.15130	.10580	.15130	.07390
5.760	-5.510	2.50000	.17650	.11280	.05810	.12670	.14320	.14110	.12670	.14110	.03020
5.800	3.780	2.50000	.08210	.12350	.02540	.13650	.21450	.16410	.13650	.16410	.01510
5.810	5.770	2.50000	.01810	.13430	.01150	.12540	.23380	.16050	.12540	.16050	.03700
GRADIENT	GRADIENT	.00000	.01457	.00079	.00043	.00387	.01363	.00177	.00387	.00177	.00738

IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF

(R3VB49) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 538/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-.320	-5.910	1.54000	-.10400	-.20370	.19580	.44100	-.21770	.06400	.19260	.05930	.02790
-.330	-3.880	1.54000	-.13240	-.05830	.18220	.27480	-.19390	.07310	.18430	.00040	.02910
-.350	.100	1.54000	-.06920	.19810	.16220	.02510	-.10500	.12090	.02420	.03540	.06900
-.380	4.190	1.54000	-.09880	.28780	.12040	.07840	-.07680	.12230	.13060	-.05850	.06170
-.380	6.190	1.54000	-.10240	.24550	.08630	.00720	-.07230	.13560	.09300	-.11240	.09730
GRADIENT		-.00000	.00411	.04279	-.00767	-.02416	.01448	.00607	-.00650	-.00737	.00401

IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF

(R3VB50) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 544/ 0 RN/L = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-.320	-5.910	2.00000	.07220	-.09240	.13590	.26630	-.07730	.09030	.21550	-.07340	.01910
-.340	-3.890	2.00000	.05060	-.05540	.12940	.18710	-.05640	.10070	.18190	-.10370	.02140
-.340	.100	2.00000	-.00690	.12030	.13120	.07620	.03930	.11950	.12580	-.10880	.02480
-.380	4.190	2.00000	-.11420	.29420	.12910	.00100	.05510	.15260	.07960	-.11900	.04570
-.380	6.190	2.00000	-.04470	.27430	.09570	-.12010	.11940	.19380	.03550	-.14260	.07690
GRADIENT		.00000	-.02042	.04326	-.00004	-.02301	.01376	.00643	-.01266	-.00190	.00302

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF

(R3VB51) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 550/ 0 RN/L = 3.05. GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-3.20	-5.910	2.50000	.18980	.13010	.14120	-.05610	-.01250	-.05360	.08910	.09490	.02450
-3.30	-3.890	2.50000	.09510	.09430	.12510	-.05010	.00860	-.05530	.08000	.11230	.02870
-3.50	.100	2.50000	.08470	.02290	.07400	.02270	.08800	-.00320	.11690	.12740	.03280
-3.80	4.190	2.50000	-.20560	.13030	.06400	.11440	.13030	-.02680	.14270	.15210	.05990
-3.80	6.190	2.50000	-.14770	-.00500	.06170	.12150	.14970	-.00490	.13660	.14580	.05460
GRADIENT		-.00000	-.03736	-.00882	-.00754	.02037	.01504	.00349	.00775	.00493	.00387

IA190B,LH2 TK C.T. + G02 P + L02AG,RAMPS ON+OIL

(R3VB52) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 552/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-5.910	-5.990	1.54000	-.09660	.15200	.20080	-.16280	-.16490	.01220	.22950	.04740	.09070
-5.920	-.510	1.54000	-.04020	.31380	.22290	-.22490	-.11320	.02060	.20550	.05000	.06590
-5.860	5.850	1.54000	.09710	.25040	.18210	-.08710	-.07580	-.02150	.19890	.06760	.03950
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 553/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB2	CNB3	CNB4	CYB2	CYB3	CYB4	CAB2	CAB3	CAB4
-3.920	-5.970	1.54000	-.17210	.01560	.18510	-.11420	-.22480	.00040	.22100	.09270	.09500
-3.900	-4.000	1.54000	-.09760	.06700	.18860	-.06930	-.20820	.01890	.20470	.08060	.09600
-3.900	-.530	1.54000	-.06280	.18160	.15970	-.08490	-.14850	-.00470	.19400	.06900	.06010
-3.910	3.780	1.54000	.04820	.24840	.13640	-.01320	-.09220	-.04340	.18320	.07580	.03980
GRADIENT		.00000	.01902	.02301	-.00666	.00766	.01484	-.00805	-.00275	-.00053	-.00712

IA190B, LH2 TK C.T. + G02 P + L02AG, RAMP5 ON+OIL

(R3VB52) (29 AUG 80)

REFERENCE DATA

SREF	=
LREF	=
BREF	=
SCALE	=

#	.0000	IN.	XT
#	.0000	IN.	YT
#	.0000	IN.	ZT

MACH =
IB-ELV =

1.550	Q(PSF)	=	600.000
8.000	QB-ELV	=	-5.000

PARAMETRIC DATA

RUN NO.	554/ 0	RN/L =	2.77	GRADIENT INTERVAL =	-5.00/ 5.00
---------	--------	--------	------	---------------------	-------------

BETA
 .030
 -.030
 -.020
 -.010
 .000

ALPHA
-5.890
-3.880
- .330
4.150
6.130
GRADIENT

MACH
1.54000
1.54000
1.54000
1.54000
1.54000
- .00000

CNB2
 .00090
 .06430
 .09710
 .10470
 .15060
 .00489

CYB2
 . 10670
 . 13270
 . 13120
 . 14490
 . 17390
 . 00159

CAB2	CNB3
.17590	-.0619
.17360	-.0618
.18050	.0133
.17540	.1951
.19280	.2030
.00017	.0323

CNB3	CYB3
.06190	-.11040
.06180	-.12840
.01330	-.09030
.19510	-.03670
.20300	-.04980
.03236	.01144

CAB3
 . 11930
 . 10200
 . 11180
 . 08430
 . 06880
 - 00237

CNB4
.05370
.04560
.02650
.03220
.06400
00151

CYB4
 . 03880
 . 04380
 . 01010
 . 05200
 . 03510
 01201

CAB4
. 10480
. 09860
. 09980
. 05990
. 05350
. 00489

RUN NO.	555/ 0	RN/L =	2.77	GRADIENT INTERVAL =	-5.00/ 5.00
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BETA
3.760
3.750
3.830

ALPHA
-3.960
- .500
3.740
GRADIENT

MACH
1.54000
1.54000
1.54000
- .00000

CNB2
.09690
.11000
.14290
.00604

CYB2
16180
19400
18750
00316

CAB2	CNB3
.14560	-.0144
.14410	.0843
.14620	.1415
.00009	.0200

CNB3	CYB3
.01440	-.09700
.08430	-.06030
.14150	-.03380
.02000	.00810

CAB3
 . 11830
 . 11670
 . 12550
 00098

CNB4
.03470
.07970
.03050
.00096

CYB4
.01350
.03850
.09900
.01460

CAB4
.08020
.08640
.10030
00264

RUN NO.	556/ 0	RN/L =	2.76	GRADIENT INTERVAL =	-5.00/ 5.00
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BETA
5.740
5.760
5.810

ALPHA
-6.010
- .510
5.770
GRADIENT

MACH
1.54000
1.54000
1.54000
000000

CNB2
.06630
.10270
.12190
.00000

CYB2
12250
15840
16030
00000

CAB2	CNB3
.11820	-.0657
.10800	.0250
.13760	.1674
.00000	.0000

CNB3	CYB3
.06570	-.10540
.02500	-.06560
.16740	-.06810
00000	00000

CAB3
. 10190
. 12170
. 09720
00000

CNB4
- 04600
- 02640
- 07100
00000

CYB4
.04690
.10070
.10900
00000

CAB4
.07110
.11070
.07550
00000

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B.LH2 TK C.T. + G02 P + L02AG.RAMPS ON+OIL

(R3VB53) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 557/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-5.910	-5.990	2.00000	-1.0570	-0.07680	.13270	.21020	-0.08970	.04160	.13650	.02440	.01940
-5.910	-5.510	2.00000	.04080	-0.03360	.14800	.26650	-0.05610	.08400	.16520	-0.07530	.04400
-5.860	5.850	2.00000	.16430	-0.04610	.16790	.29750	.03240	.12100	.22360	-0.10870	.05420
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 558/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-3.900	-4.000	2.00000	-0.05990	.01320	.13060	.18750	-0.08280	.07360	.12890	-0.06030	.04100
-3.900	-5.530	2.00000	.06730	.00560	.14150	.23650	-0.03490	.09130	.15360	-0.11390	.04530
-3.910	3.780	2.00000	.09100	-0.05340	.16490	.27390	-0.00840	.10830	.17980	-0.13230	.05350
	GRADIENT	.00000	.01884	-0.00876	.00445	.01101	.00943	.00444	.00652	-0.00906	.00162

RUN NO. 559/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-0.030	-5.890	2.00000	-0.00110	.12030	.13410	.01710	-0.05410	.11710	.03480	-0.10240	.07460
-0.030	-3.880	2.00000	.02400	.11370	.14310	.11200	-0.02080	.10210	.05520	-0.11580	.06530
-0.020	-0.330	2.00000	.10500	.10080	.14530	.17900	.03020	.10250	.11350	-0.11390	.04960
-0.010	4.150	2.00000	.11640	.11610	.14010	.22230	.03360	.11130	.11330	-0.11730	.06400
.000	6.130	2.00000	.14500	.16550	.14840	.23420	.04350	.11670	.13550	-0.13070	.07120
	GRADIENT	.00000	.01112	.00043	-0.00041	.01356	.00852	.00118	.00692	-0.00021	-0.00002

RUN NO. 560/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
3.760	-3.960	2.00000	.11600	.18230	.13240	.07620	.01660	.13500	-0.02560	-0.10600	.08210
3.750	-5.500	2.00000	.15410	.20950	.14190	.11960	.03150	.12920	.05520	-0.10900	.05800
3.830	3.740	2.00000	.15620	.20110	.13510	.17090	.04310	.13070	.04480	-0.10230	.08170
	GRADIENT	.00000	.00505	.00228	.00028	.01229	.00342	-0.00052	.00871	.00052	.00016

RUN NO. 561/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
5.740	-6.010	2.00000	.11380	.20430	.11530	.01690	-0.00160	.14170	-0.02970	-0.10260	.08210
5.760	-5.510	2.00000	.17940	.20140	.10450	.09370	.06540	.16210	-0.05980	-0.13470	.09370
5.810	5.770	2.00000	.09910	.11600	.11540	.22220	.04990	.13680	.00000	-0.08210	.08560
	GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000	.00000

C-6

IA190B, LH2 TK C.T. + G02 P + L02AG, RAMPS ON+OIL

(R3VB54) (31 JUL 80)

REFERENCE DATA

SREF	=	.0171	SQ.	IN	XMRP	=	.0000	IN.	XT
LREF	=	.0000	INCHES		YMRP	=	.0000	IN.	YT
BREF	=	.0000	INCHES		ZMRP	=	.0000	IN.	ZT
SCALE	=	.0300							

MACH	=	2.500	Q (PSF)	=	600.000
IB-ELV	=	8.000	OB-ELV	=	-5.000

PARAMETRIC DATA

RUN NO.	562/ 0	RN/L =	3.02	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

RUN NO.	563/ 0	RN/L =	3.01	GRADIENT INTERVAL =	-5.00/ 5.00
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BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-3.900	-4.000	2.50000	-.08860	.01810	.07590	.18100	-.00890	.08610	.12510	-.09030	.03900
-3.900	-.530	2.50000	-.01200	.04390	.18480	.03180	-.09790	.04620	.14720	-.09700	.06250
-3.910	3.780	2.50000	.09800	.02450	.12340	.18490	.02210	.10150	.14910	-.09700	.05750
GRADIENT		.00000	.02405	.00061	.00624	.00048	.00374	.00193	.00298	-.00083	.00239

RUN NO.	564/ 0	RN/L =	3.01	GRADIENT INTERVAL =	-5.00/ 5.00
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BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
-.030	-5.890	2.50000	-.01240	-.09480	-.06510	-.10000	-.01510	-.11110	-.10900	-.07700	-.02880
-.030	-3.880	2.50000	-	-.08820	-.06310	-.13740	-.04130	-.11090	-.11490	-.07700	-.04420
-.020	-.320	2.50000	-.07630	-.08020	-.07110	-.17110	-.07080	-.10800	-.10450	-.06700	-.06070
-.010	4.150	2.50000	-.00540	-.00540	-.14640	-.15720	-.04790	-.10540	-.09990	-.03510	-.06980
.000	6.130	2.50000	-.08220	-.06670	-.15250	-.17290	-.05940	-.10890	-.09630	-.06690	-.07510
GRADIENT		.00000	-.00604	-.01177	-.01036	-.00223	-.00057	-.00068	-.00183	-.00530	-.00314

RUN NO.	565/ 0	RN/L =	3.00	GRADIENT INTERVAL =	-5.00/ 5.00
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BETA	ALPHA	MACH	CNB2	CYB2	CAB2	CNB3	CYB3	CAB3	CNB4	CYB4	CAB4
3.790	-3.970	2.50000	.01830	.10350	.09280	.08600	.07520	.13680	.05710	-.10070	.05390
3.750	-5.500	2.50000	.01870	.05440	.13590	.14330	.09830	.13550	.05430	-.06370	.07530
3.830	-3.740	2.50000	.10540	.06520	.14170	.14330	.09820	.12730	.07400	-.04520	.07100
GRADIENT		-.00000	.01163	-.00469	.00616	.00716	.00287	-.00126	.00228	.00709	.00210

RUN NO.	566/ 0	RN/L =	3.00	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B, LH2 TK C.T. + G02 PRESS + LD2AG, RAMPS ON (R3VC43) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 517/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.910	-5.990	1.54000	.13960	.34220	-.03540
-5.910	-4.050	1.54000	.11410	.30540	-.02820
-5.920	-.510	1.54000	.08050	.29200	-.01520
-5.880	3.860	1.54000	.08670	.36280	-.04630
-5.860	5.860	1.54000	.11710	.36630	.09150
	GRADIENT	.00000	-.00328	.00760	.00960

RUN NO. 518/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.920	-5.970	1.54000	.07560	.30280	-.05420
-3.900	-4.010	1.54000	.03830	.27280	-.04540
-3.900	-.530	1.54000	-.05900	.25870	-.00270
-3.910	3.790	1.54000	-.04800	.31940	.04140
-3.910	5.790	1.54000	-.04950	.32860	.06560
	GRADIENT	.00000	-.01052	.00629	.01109

RUN NO. 519/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.040	-5.890	1.54000	-.10210	.18180	-.06020
-.030	-3.880	1.54000	-.11390	.17870	-.05600
-.020	-.320	1.54000	-.16810	.14140	-.03790
-.010	4.160	1.54000	-.23910	.21340	.02940
.000	6.130	1.54000	-.24190	.24450	.05190
	GRADIENT	-.00000	-.01558	.00481	.01081

RUN NO. 520/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.780	-5.940	1.54000	-.09220	.17600	-.06270
3.790	-3.980	1.54000	-.12920	.16830	-.06270
3.750	-.500	1.54000	-.21840	.13520	-.05620
3.830	3.750	1.54000	-.32340	.16980	-.00400
3.860	5.730	1.54000	-.31810	.16390	.01840
	GRADIENT	-.00000	-.02511	.00048	.00776

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS ON

(R3VC43) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 521/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.740	-6.010	1.54000	-.08620	.10030	-.07680
5.760	-4.040	1.54000	-.10460	.09570	-.06520
5.750	-.510	1.54000	-.21180	.08770	-.05950
5.800	3.780	1.54000	-.34510	.04110	-.03090
5.820	5.770	1.54000	-.37470	.05120	-.01100
	GRADIENT	.00000	-.03077	-.00712	.00447

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS ON

(R3VC44) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 522/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.900	-5.990	2.00000	.15940	.32450	-.04100
-5.900	-4.050	2.00000	.17040	.28290	-.04510
-5.910	-.510	2.00000	.12440	.31900	-.03810
-5.880	3.860	2.00000	.07330	.36930	.00890
-5.860	5.860	2.00000	.10730	.39880	.02580
	GRADIENT	.00000	-.01225	.01095	.00698

RUN NO. 523/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.920	-5.970	2.00000	.03930	.22060	-.05710
-3.900	-4.000	2.00000	.03450	.24550	-.05040
-3.900	-.530	2.00000	.06270	.35170	-.01520
-3.910	3.780	2.00000	.00730	.31790	.02490
-3.910	5.790	2.00000	-.07410	.24520	.03460
	GRADIENT	.00000	-.00387	.00862	.00966

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

PAGE 79

IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS ON

(R3VC44) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 524/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.040	-5.890	2.00000	-.06700	.16700	-.05430
-.030	-3.880	2.00000	-.09520	.16640	-.04920
-.020	-.320	2.00000	-.13500	.16870	-.02850
-.010	4.160	2.00000	-.17100	.23800	.01620
.000	6.130	2.00000	-.21170	.20260	.02430
	GRADIENT	.00000	-.00937	.00918	.00821

RUN NO. 525/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.780	-5.940	2.00000	-.05030	.14760	-.03030
3.790	-3.980	2.00000	-.09210	.14730	-.01710
3.750	-.500	2.00000	-.15710	.16900	-.01620
3.830	3.750	2.00000	-.16640	.22500	.00380
3.860	5.730	2.00000	-.22640	.23940	.00790
	GRADIENT	.00000	-.00934	.01017	.00278

RUN NO. 526/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.740	-6.010	2.00000	-.02700	.13290	-.03860
5.760	-4.040	2.00000	-.06550	.13710	-.03440
5.760	-.510	2.00000	-.09360	.16050	-.00630
5.800	3.780	2.00000	-.18270	.12310	-.01970
5.820	5.770	2.00000	-.23170	.08440	-.00910
	GRADIENT	.00000	-.01519	-.00204	.00170

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS ON

(R3VC45) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 527/ 0 RN/L = 3.08 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.900	-5.990	2.50000	.12240	.42100	-.03450
-5.900	-4.050	2.50000	.16780	.42750	-.03500
-5.910	-.510	2.50000	.17680	.43030	-.03840
-5.880	3.850	2.50000	.09580	.29400	-.01100
-5.860	5.850	2.50000	.06070	.29990	-.00630
	GRADIENT	.00000	-.00947	-.01745	.00316

RUN NO. 528/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.920	-5.970	2.50000	.07480	.36680	-.04840
-3.900	-4.000	2.50000	.10700	.38630	-.03810
-3.900	-.530	2.50000	.07240	.29870	-.03280
-3.910	3.780	2.50000	.03460	.23420	-.01900
-3.910	5.780	2.50000	.00420	.21910	-.00060
	GRADIENT	.00000	-.00928	-.01937	.00248

RUN NO. 529/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.040	-5.890	2.50000	-.05490	.19520	-.05090
-.030	-3.880	2.50000	-.08030	.17740	-.04270
-.020	-.320	2.50000	-.10420	.14310	-.03040
-.010	4.150	2.50000	-.08990	.19620	.00540
.000	6.130	2.50000	-.11780	.24500	.01460
	GRADIENT	.00000	-.00101	.00274	.00607

RUN NO. 530/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.780	-5.940	2.50000	-.04770	.22920	-.00520
3.790	-3.980	2.50000	-.09160	.20380	.00790
3.750	-.500	2.50000	-.10300	.21400	.02620
3.830	3.750	2.50000	-.05930	.23210	.02130
3.860	5.730	2.50000	-.08940	.23050	.03040
	GRADIENT	-.00000	.00440	.00368	.00163

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS ON

(R3VC45) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 531/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.740	-6.000	2.50000	-.03480	.18640	-.01940
5.760	-4.040	2.50000	-.04850	.15970	-.01370
5.760	-.510	2.50000	-.07910	.12700	-.02130
5.800	3.780	2.50000	-.07470	.19490	.02610
5.810	5.770	2.50000	-.08650	.18450	.03610
	GRADIENT	.00000	-.00320	.00490	.00530

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF

(R3VC46) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 533/ 0 RN/L = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.900	-5.990	1.54000	.15790	.32180	-.04770
-5.900	-4.050	1.54000	.12240	.29480	-.02810
-5.910	-.510	1.54000	.10550	.28440	-.02500
-5.880	3.860	1.54000	.09980	.34470	.03800
-5.860	5.860	1.54000	.12700	.35410	.05480
	GRADIENT	.00000	-.00280	.00660	.00859

RUN NO. 534/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.910	-5.930	1.54000	.08370	.28170	-.05830
-3.900	-4.000	1.54000	.06500	.25540	-.04700
-3.900	-.530	1.54000	.03100	.23620	-.00690
-3.910	3.780	1.54000	-.03500	.29150	.04140
-3.910	5.790	1.54000	-.02450	.30740	.05710
	GRADIENT	.00000	-.01238	.00497	.01136

IA190B, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF (R3VC46) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 535/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.040	-5.880	1.54000	-.10410	.14740	-.06430
-.030	-3.880	1.54000	-.11580	.14580	-.05760
-.020	-.320	1.54000	-.17320	.11150	-.04290
-.010	4.150	1.54000	-.24580	.18480	.02680
.000	6.130	1.54000	-.23180	.22480	.04840
	GRADIENT	-.00000	-.01619	.00534	.01072

RUN NO. 536/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.780	-5.940	1.54000	-.07900	.14900	-.07000
3.790	-3.980	1.54000	-.11930	.14140	-.06920
3.750	-.500	1.54000	-.21700	.10690	-.06370
3.830	3.750	1.54000	-.30700	.13580	-.00570
3.860	5.730	1.54000	-.31870	.13280	.01500
	GRADIENT	-.00000	-.02417	-.00045	.00841

RUN NO. 537/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.730	-6.000	1.54000	-.09170	.07370	-.07860
5.760	-4.040	1.54000	-.11860	.06620	-.07280
5.760	-.510	1.54000	-.21590	.06710	-.06300
5.800	3.780	1.54000	-.34200	.03670	-.03830
5.810	5.770	1.54000	-.36910	.01130	-.01440
	GRADIENT	.00000	-.02860	-.00389	.00446

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

PAGE 83

IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF

(R3VC47) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN
.0000 INCHES
.0000 INCHES
.0300

XMRP =
YMRP =
ZMRP =

.0000 IN. XT
.0000 IN. YT
.0000 IN. ZT

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 539/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.910	-5.990	2.00000	.16750	.29220	-.04930
-5.910	-4.050	2.00000	.18570	.26870	-.05590
-5.920	-.510	2.00000	.12720	.28160	-.04300
-5.880	3.850	2.00000	.07290	.34610	.00890
-5.860	5.850	2.00000	.11880	.38620	.03250
	GRADIENT	.00000	-.01421	.00999	.00834

RUN NO. 540/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.910	-5.930	2.00000	.06090	.20440	-.06030
-3.900	-4.000	2.00000	.07120	.22520	-.05600
-3.900	-.530	2.00000	.07590	.32700	-.02010
-3.910	3.780	2.00000	.03390	.30450	.01840
-3.910	5.780	2.00000	-.06430	.21960	.03030
	GRADIENT	.00000	-.00499	.00958	.00954

RUN NO. 541/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.050	-5.850	2.00000	.05040	.14910	-.06000
-.030	-3.880	2.00000	-.08740	.14000	-.05350
-.020	-.320	2.00000	-.12900	.14850	-.03690
-.010	4.150	2.00000	-.16800	.21580	.01200
.000	6.130	2.00000	-.20320	.19930	.02180
	GRADIENT	.00000	-.00998	.00967	.00827

RUN NO. 542/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.780	-5.930	2.00000	-.01690	.14050	-.03610
3.790	-3.970	2.00000	-.07240	.12830	-.02950
3.750	-.500	2.00000	-.15090	.15290	-.02620
3.830	3.740	2.00000	-.16520	.21190	-.00210
3.860	5.730	2.00000	-.22710	.21890	.00700
	GRADIENT	.00000	-.01172	.01096	.00363

IA1908,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF

(R3VC47) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH =
IB-ELV =
2.000 Q(PSF) = 600.000
8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 543/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.730	-6.000	2.00000	.00880	.11830	-.04600
5.760	-4.040	2.00000	-.06750	.11800	-.04360
5.750	-.510	2.00000	-.10410	.13400	-.02290
5.800	3.780	2.00000	-.18670	.10250	-.02640
5.820	5.770	2.00000	-.22410	.05050	-.01500
	GRADIENT	.00000	-.01539	-.00217	.00209

IA1908,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF

(R3VC48) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH =
IB-ELV =
2.500 Q(PSF) = 600.000
8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 545/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.900	-5.990	2.50000	.10060	.41510	-.04220
-5.900	-4.050	2.50000	.13750	.41670	-.04100
-5.910	-.510	2.50000	.16590	.40370	-.03840
-5.880	3.850	2.50000	.06890	.29520	-.01860
-5.860	5.850	2.50000	.04200	.29040	-.00390
	GRADIENT	.00000	-.00920	-.01574	.00290

RUN NO. 546/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.910	-5.930	2.50000	.05410	.33040	-.05010
-3.900	-4.000	2.50000	.10000	.37090	-.04560
-3.900	-.530	2.50000	.07720	.29220	-.03850
-3.910	3.780	2.50000	.01940	.22520	-.02170
-3.910	5.780	2.50000	.01100	.22060	.00070
	GRADIENT	.00000	-.01048	-.01860	.00310

IA190B, LH2 TK C.T. + G02 PRESS + LO2AG, RAMPS OFF (R3VC48) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN
.0000 INCHES
.0000 INCHES
.0300

XMRP = .0000 IN. XT
YMRP = .0000 IN. YT
ZMRP = .0000 IN. ZT

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 547/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.050	-5.850	2.50000	-.05520	.17750	-.05260
-.030	-3.880	2.50000	-.08710	.17140	-.04850
-.020	-.320	2.50000	-.11610	.13570	-.02960
-.010	4.150	2.50000	-.11210	.17850	.00120
.000	6.130	2.50000	-.13510	.22130	.01290
	GRADIENT	.00000	-.00295	.00125	.00622

RUN NO. 548/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.780	-5.930	2.50000	-.04450	.22180	-.01110
3.790	-3.970	2.50000	-.07150	.20090	-.00040
3.750	-.500	2.50000	-.12360	.19620	.01780
3.830	3.740	2.50000	-.08140	.21120	.01130
3.860	5.730	2.50000	-.09480	.21860	.02040
	GRADIENT	-.00000	-.00087	.00142	.00141

RUN NO. 549/ 0 RN/L = 3.05 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.740	-6.000	2.50000	-.01800	.18650	-.02020
5.760	-4.040	2.50000	-.04700	.15380	-.01870
5.760	-.510	2.50000	-.10300	.10910	-.02720
5.800	3.780	2.50000	-.08360	.17270	.01530
5.810	5.770	2.50000	-.08340	.17420	.03190
	GRADIENT	.00000	-.00435	.00286	.00454

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF (R3VC49) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 538/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB5	CYB5	CAB5
-.320	-5.910	1.54000	.14260	.28340	-.01320
-.330	-3.880	1.54000	-.00060	.23370	.00060
-.350	.100	1.54000	-.17670	.11010	-.03960
-.380	4.190	1.54000	-.21710	.09950	-.05710
-.380	6.190	1.54000	-.20440	.04640	-.06470
	GRADIENT	-.00000	-.02675	-.01656	-.00714

IA190B,LH2 TK C.T. + G02 PRESS + L02AG,RAMPS OFF

(R3VC50) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 544/ 0 RN/L = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB5	CYB5	CAB5
-.320	-5.910	2.00000	.13080	.29800	-.04220
-.340	-3.890	2.00000	.09100	.33300	-.01590
-.340	.100	2.00000	-.11730	.15160	-.03780
-.380	4.190	2.00000	-.13230	.15740	-.02450
-.380	6.190	2.00000	-.08400	.13400	-.02370
	GRADIENT	.00000	-.02754	-.02164	-.00105

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA1908

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IA1908, LH2 TK C.T. + G02 PRESS + L02AG, RAMPS OFF (R3VC51) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH = 2.500 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 550/ 0 RN/L = 3.05 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB5	CYB5	CAB5
-.320	-5.910	2.50000	.16770	.40540	-.04170
-.330	-3.890	2.50000	.08050	.28190	-.03600
-.350	.100	2.50000	-.10100	.13430	-.02960
-.380	4.190	2.50000	-.11690	.19490	.01950
-.380	6.190	2.50000	-.09950	.11950	-.02050
	GRADIENT	-.00000	-.02434	-.01066	.00689

IA1908, LH2 TK C.T. + G02 P + L02AG, RAMPS ON +OIL

(R3VC52) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

MACH = 1.550 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 552/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.910	-5.990	1.54000	.15270	.32150	-.04110
-5.920	-.510	1.54000	.08870	.29000	-.01850
-5.860	5.850	1.54000	.10160	.35350	.05790
	GRADIENT	.00000	.00000	.00000	.00000

RUN NO. 553/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.920	-5.970	1.54000	.06510	.28260	-.05420
-3.900	-4.000	1.54000	.03480	.26630	-.04790
-3.900	-.530	1.54000	-.05570	.24940	-.00930
-3.910	3.780	1.54000	-.07170	.28750	.03460
	GRADIENT	.00000	-.01329	.00297	.01059

IA190B, LH2 TK C.T. + G02 P + L02AG, RAMPS ON +0IL

(R3VC52) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 554/ 0 RN/L = 2.77 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.030	-5.890	1.54000	-.11220	.16360	-.06260
-.030	-3.880	1.54000	-.12910	.15310	-.05850
-.020	-.330	1.54000	-.19460	.12760	-.04290
-.010	4.150	1.54000	-.25050	.19510	.02760
.000	6.130	1.54000	-.25810	.23630	.05250
	GRADIENT	-.00000	-.01501	.00565	.01094

RUN NO. 555/ 0 RN/L = 2.77 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.760	-3.960	1.54000	-.13750	.15320	-.06930
3.750	-.500	1.54000	-.23500	.10820	-.06030
3.830	3.740	1.54000	-.33650	.15920	-.00320
	GRADIENT	-.00000	-.02577	.00120	.00877

RUN NO. 556/ 0 RN/L = 2.76 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.740	-6.010	1.54000	-.10980	.07940	-.08090
5.760	-.510	1.54000	-.22880	.07870	-.06370
5.810	5.770	1.54000	-.40500	.03180	-.01930
	GRADIENT	.00000	.00000	.00000	.00000

IA190B,LH2 TK C.T. + G02 P + L02AG,RAMPS ON +OIL

(R3VC53) (16 OCT 80)

REFERENCE DATA

SREF =
LREF =
BREF =
SCALE =

.0171 SQ. IN XMRP = .0000 IN. XT
.0000 INCHES YMRP = .0000 IN. YT
.0000 INCHES ZMRP = .0000 IN. ZT
.0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 557/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.910	-5.990	2.00000	.15270	.30510	-.04730
-5.910	-.510	2.00000	.10090	.32010	-.03490
-5.860	5.850	2.00000	.11090	.43060	.03580
	GRADIENT	.00000	.00000	.00000	.00000

RUN NO. 558/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.900	-4.000	2.00000	.04320	.26660	-.05120
-3.900	-.530	2.00000	.04770	.34890	-.01120
-3.910	3.780	2.00000	-.02310	.30120	.01570
	GRADIENT	.00000	-.00884	.00383	.00851

RUN NO. 559/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.030	-5.890	2.00000	-.07700	.15930	-.05510
-.030	-3.880	2.00000	-.10890	.15470	-.05020
-.020	-.330	2.00000	-.15250	.14700	-.03280
-.010	4.150	2.00000	-.19310	.22770	.01280
.000	6.130	2.00000	-.23210	.19220	.02430
	GRADIENT	.00000	-.01042	.00947	.00795

RUN NO. 560/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.760	-3.960	2.00000	-.09900	.13990	-.01870
3.750	-.500	2.00000	-.17240	.15410	-.02290
3.830	3.740	2.00000	-.20840	.21730	-.00460
	GRADIENT	.00000	-.01400	.01023	.00192

RUN NO. 561/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.740	-6.010	2.00000	-.04730	.12400	-.04270
5.760	-.510	2.00000	-.12560	.14410	-.01540
5.810	5.770	2.00000	-.25040	.06960	-.01660
	GRADIENT	.00000	.00000	.00000	.00000

IA1908, LH2 TK C.T. + G02 P + L02AG, RAMPS ON +OIL (R3VC54) (16 OCT 80)

REFERENCE DATA

SREF = .0171 SQ. IN
 LREF = .0000 INCHES
 BREF = .0000 INCHES
 SCALE = .0300

XMRP = .0000 IN. XT
 YMRP = .0000 IN. YT
 ZMRP = .0000 IN. ZT

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 562/ 0 RN/L = 3.02 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-5.910	-5.990	2.50000	.09370	.41330	-.03970
-5.910	-.510	2.50000	.15870	.40830	-.03340
-5.860	5.850	2.50000	.02510	.28200	-.00400
	GRADIENT	.00000	.00000	.00000	.00000

RUN NO. 563/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-3.900	-4.000	2.50000	.08470	.37540	-.04060
-3.900	-.530	2.50000	.06190	.29420	-.03760
-3.910	3.780	2.50000	-.00080	.22590	-.02670
	GRADIENT	.00000	-.01113	-.01908	.00182

RUN NO. 564/ 0 RN/L = 3.01 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
-.030	-5.890	2.50000	-.05820	.19180	-.05490
-.030	-3.880	2.50000	-.07510	.17540	-.04420
-.020	-.320	2.50000	-.11240	.13240	-.03120
-.010	4.150	2.50000	-.10660	.19140	.00370
.000	6.130	2.50000	-.13630	.22070	.01290
	GRADIENT	.00000	-.00370	.00246	.00604

RUN NO. 565/ 0 RN/L = 3.00 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
3.790	-3.970	2.50000	-.09640	.20480	.00790
3.750	-.500	2.50000	-.12470	.21210	.02360
3.830	3.740	2.50000	-.08600	.22850	.01130
	GRADIENT	-.00000	.00163	.00310	.00032

RUN NO. 566/ 0 RN/L = 3.00 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB5	CYB5	CAB5
5.730	-6.010	2.50000	-.05320	.18440	-.02190
5.750	-.510	2.50000	-.11430	.11910	-.02790
5.810	5.760	2.50000	-.11450	.17800	.03350
	GRADIENT	.00000	.00000	.00000	.00000

IA1908.GH2 PRESSURE LINE RAMP5 ON

(R3VD43) (29 AUG 80)

REFERENCE DATA

SREF	=
LREF	=
BREF	=
SCALE	=

0171	SQ.	IN	XMRP	=	.0000	IN.	XT
0000	INCHES		YMRP	=	.0000	IN.	YT
0000	INCHES		ZMRP	=	.0000	IN.	ZT
Q300							

MACH	=	1.550	Q(Psf)	=	600.000
IB-ELV	=	8.000	OB-ELV	=	-5.000

PARAMETRIC DATA

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7
-5.910	-5.990	1.54000	-.03600	-.05280	-.05390	.00150	.01000	-.03610
-5.910	-4.050	1.54000	-.03620	-.04070	-.04510	-.00360	.01920	-.02720
-5.920	-.510	1.54000	-.04990	.02740	.02890	-.01590	.03100	-.01400
-5.880	3.860	1.54000	-.04760	-.01810	-.00580	-.00510	.02700	.00710
-5.860	5.860	1.54000	-.03730	.02770	.00440	-.00020	.02900	.01370
	GRADIENT	.00000	-.00137	.00283	.00498	-.00009	.00091	.00430

BETA		ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7
-3.920	-5.970	1.54000	-0.4440	-0.5840	-0.05190	-0.0200	-0.0200	.00110	-.03680
-3.900	-4.010	1.54000	-0.3110	-0.06000	-0.04700	-0.01300	-0.01300	.00120	-.02950
-3.900	-5.300	1.54000	-0.3180	-0.3730	-0.02890	-0.0230	-0.0230	.02250	-.01290
-3.910	3.790	1.54000	-0.3700	-0.02140	.00000	.00840	.00840	.01900	.00560
-3.910	5.790	1.54000	-0.3160	-0.02570	.00880	.00250	.00250	.01820	.01260
GRADIENT		.00000	-.00077	.00490	.00605	.00269	.00216	.0044	.0044

[illegible]

BETA	ALPHA	MACH	RUN NO.	520/ 3	RN/L =	2.83	GRADIENT INTERVAL =	-5.00/	5.00/
				CNB6	CYB6	CAB6	CNB7	CYB7	CAB7
3.780	-5.940	1.54000		.00250	-.10480	-.04940	.00740	-.00860	-.03160
3.790	-3.980	1.54000		-.00150	-.11150	-.04140	.00660	-.01050	-.02430
3.750	-.500	1.54000		-.00360	-.10130	-.02820	.01020	-.00150	-.01180
3.830	3.750	1.54000		.00150	-.07270	-.00110	.01760	.00470	.00880
3.860	5.730	1.54000		.00770	-.06000	.01100	.01390	.00230	.01590
	GRADIENT	-.00000		.00042	-.00508	.00526	.00143	.00195	.00430

IA190B,GH2 PRESSURE LINE RAMPS ON

(R3VD43) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 521/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
5.740	-6.010	1.54000	.01100	-.10370	-.04700	.01550	-.02050	-.02880	-.01200	-.12270	-.01150
5.760	-4.040	1.54000	.00500	-.11640	-.03810	.01240	-.01620	-.02240	-.02190	-.10960	-.00670
5.750	-.510	1.54000	.00610	-.10540	-.02410	.01880	-.00810	-.00960	-.03770	-.11710	-.00810
5.800	3.780	1.54000	.00150	-.07230	.00120	.02450	.00660	.01000	-.04840	-.12810	.02140
5.820	5.770	1.54000	.00520	-.06790	.01350	.01970	.00460	.01670	-.04060	-.14040	.02910
	GRADIENT	.00000	-.00047	.00571	.00506	.00154	.00293	.00416	-.00336	-.00237	.00358

IA190B,GH2 PRESSURE LINE RAMPS ON

(R3VD44) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 522/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-5.900	-5.990	2.00000	-.06530	-.02250	-.03790	-.00600	.01920	-.02940	-.03750	-.04400	-.01840
-5.900	-4.050	2.00000	-.06790	-.01730	-.03280	.00070	.02240	-.02090	-.04530	-.02940	-.01600
-5.910	-.510	2.00000	-.07440	-.03400	-.01740	.00940	.01320	-.00720	-.05540	-.03040	-.00100
-5.860	3.860	2.00000	-.03760	-.06230	.01140	.01090	.00930	.01130	-.06950	-.06290	.01680
-5.860	5.860	2.00000	-.03030	-.05600	.01840	.00850	.01740	.01890	-.08830	-.05050	.02160
	GRADIENT	.00000	.00401	-.00572	.00563	.00125	-.00163	.00408	-.00307	-.00436	.00414

RUN NO. 523/ 0 RN/L = 2.86 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-3.920	-5.970	2.00000	-.05620	-.03550	-.04200	-.00790	.00640	-.03110	-.03580	-.03090	-.01830
-3.900	-4.000	2.00000	-.05130	-.03360	-.03020	-.00700	.00790	-.02480	-.04180	-.04060	-.01110
-3.900	-.530	2.00000	-.05660	-.02180	-.02130	.01150	.00850	-.00880	-.05180	-.05470	.00200
-3.910	3.780	2.00000	-.05020	-.03770	.00540	.01540	.00740	.00990	-.08660	-.05630	.01510
-3.910	5.790	2.00000	-.03270	-.03900	.01970	.01750	.01160	.01750	-.08080	-.03630	.01750
	GRADIENT	.00000	.00019	-.00065	.00464	.00280	-.00007	.00446	-.00320	-.00195	.00335

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA1908

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IA1908.GH2 PRESSURE LINE RAMPS ON

(R3VD44) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 524/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-.040	-5.890	2.00000	-.03290	-.06830	-.04160	.00640	.00540	-.02960	-.02470	-.05550	-.01670
-.030	-3.880	2.00000	-.03560	-.05910	-.03470	.01240	.00350	-.02420	-.03060	-.05300	-.01120
-.020	-.320	2.00000	-.03030	-.04000	-.01400	.01770	.00160	-.00930	-.04360	-.04870	-.00310
-.010	4.160	2.00000	-.01460	-.05120	.01230	.01600	-.01000	.01280	-.06250	-.03770	.01500
.000	6.130	2.00000	-.00960	-.06100	.02150	.01910	-.00350	.01720	-.07280	-.03490	.02030
	GRADIENT	.00000	.00265	.00084	.00585	.00041	-.00172	.00462	-.00398	.00193	.00323

RUN NO. 525/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
3.780	-5.940	2.00000	-.02860	-.07290	-.04470	.01320	.00690	-.03120	-.00720	-.11340	-.01310
3.790	-3.980	2.00000	-.02890	-.07730	-.03580	.01920	.00500	-.02490	-.01100	-.11400	-.00730
3.750	-.500	2.00000	-.03270	-.06010	-.02040	.02410	.00160	-.00760	-.03160	-.10680	.00660
3.830	3.750	2.00000	-.02750	-.03780	.00650	.02330	-.01080	.01180	-.04480	-.10240	.01930
3.860	5.730	2.00000	-.02160	-.04300	.01200	.02480	-.01160	.01890	-.05230	-.09430	.02610
	GRADIENT	.00000	.00022	.00511	.00550	.00050	-.00208	.00474	-.00433	.00148	.00342

RUN NO. 526/ 0 RN/L = 2.85 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
5.740	-6.010	2.00000	-.01940	-.08590	-.04660	.01770	.00350	-.03090	-.01770	-.10860	-.01410
5.760	-4.040	2.00000	-.02300	-.08750	-.04070	.02380	.00310	-.02410	-.01710	-.11350	-.00790
5.760	-.510	2.00000	-.02400	-.05150	-.02460	.02570	-.00030	-.00920	-.03020	-.12640	.00690
5.800	3.780	2.00000	-.01870	-.03560	.00390	.02620	-.00960	.01180	-.03930	-.12590	.02100
5.820	5.770	2.00000	-.01330	-.03790	.01050	.03000	-.00920	.01890	-.04210	-.10940	.02640
	GRADIENT	.00000	.00057	.00653	.00574	.00030	-.00164	.00460	-.00281	-.00153	.00368

IA190B.GH2 PRESSURE LINE RAMPS ON

(R3VD45) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 527/ 0 RN/L = 3.08 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-5.900	-5.990	2.50000	-.06900	-.00480	-.03890	.01280	.00810	-.02880	-.03630	-.06740	-.01620
-5.900	-4.050	2.50000	-.06930	.01450	-.03170	.01190	.00770	-.02370	-.03690	-.04130	-.01190
-5.910	-.510	2.50000	-.05990	-.02590	-.01270	.01210	.00550	-.00970	-.04250	-.05590	-.00240
-5.880	3.850	2.50000	-.02570	-.05060	.01210	.01260	.00470	.01050	-.04520	-.02850	.01440
-5.860	5.850	2.50000	-.00440	-.08260	.02260	.01810	.00810	.01730	-.04230	-.05610	.02380
	GRADIENT	.00000	.00561	-.00814	.00555	.00009	-.00037	.00434	-.00103	.00180	.00331

RUN NO. 528/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-3.920	-5.970	2.50000	-.06290	-.02570	-.04130	.00640	.00540	-.03080	-.03210	-.06100	-.01680
-3.900	-4.000	2.50000	-.06060	-.00650	-.03330	.01020	.00540	-.02350	-.03470	-.07790	-.01080
-3.900	-.530	2.50000	-.05340	.01590	-.01800	.01150	.00430	-.00970	-.04060	-.07020	.00340
-3.910	3.780	2.50000	-.03170	-.04380	.00890	.01480	.00470	.00990	-.03920	-.04530	.01500
-3.910	5.780	2.50000	-.02030	-.05570	.01630	.01450	.00460	.01510	-.03780	-.07130	.02280
	GRADIENT	.00000	.00377	-.00515	.00546	.00060	-.00008	.00430	-.00054	.00425	.00329

RUN NO. 529/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-.040	-5.890	2.50000	-.03880	-.06910	-.04380	.01670	.00310	-.02960	-.01970	-.06260	-.01580
-.030	-3.880	2.50000	-.03790	-.05460	-.03660	.01710	.00160	-.02200	-.02450	-.05250	-.01050
-.020	-.320	2.50000	-.04040	-.02750	-.02140	.00890	-.01620	-.00350	-.03270	-.03870	.00100
-.010	4.150	2.50000	-.02610	-.03480	.00560	.00970	.01940	.01280	-.04510	-.04070	.01480
.000	6.130	2.50000	-.02330	-.03910	.01540	.01120	-.01980	.01960	-.05310	-.05100	.02230
	GRADIENT	.00000	.00154	.00229	.00529	-.00088	-.00254	.00430	-.00257	.00139	.00315

RUN NO. 530/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
3.780	-5.940	2.50000	-.03380	-.08360	-.04720	.01500	.00040	-.02960	-.00540	-.12250	-.01380
3.790	-3.980	2.50000	-.03390	-.07230	-.04180	.01470	-.01320	-.02350	-.00480	-.12580	-.00880
3.750	-.500	2.50000	-.03030	-.05940	-.02590	.01460	-.02510	-.00350	-.00700	-.12670	.00560
3.830	3.750	2.50000	-.03620	-.03670	-.00090	.01370	-.02400	.01360	-.01100	-.11790	.01780
3.860	5.730	2.50000	-.02970	-.03990	.00690	.01870	-.02750	.02070	-.02760	-.10490	.02410
	GRADIENT	-.00000	-.00034	.00463	.00531	-.00013	-.00134	.00477	-.00081	.00106	.00342

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TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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(R3VD45) (29 AUG 80)

IA190B,GH2 PRESSURE LINE RAMPS ON

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 531/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
5.740	-6.000	2.50000	-.02750	-.11160	-.05300	.01500	.00500	-.02990	-.00510	-.13510	-.01390
5.760	-4.040	2.50000	-.03250	-.09110	-.04440	.01480	-.00700	-.02180	-.00260	-.13320	-.00840
5.760	-.510	2.50000	-.03880	-.06130	-.03280	.01510	-.02200	-.00380	-.00320	-.12180	.00400
5.800	3.780	2.50000	-.02830	-.03830	-.00600	.01710	-.02500	.01360	-.00480	-.12300	.01710
5.810	5.770	2.50000	-.02660	-.03910	.00270	.02090	-.02790	.02020	-.01160	-.12150	.02380
	GRADIENT	.00000	.00060	.00670	.00496	.00030	-.00231	.00451	-.00028	.00125	.00325

(R3VD46) (29 AUG 80)

IA190B,GH2 PRESSURE LINE RAMPS OFF

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 533/ 0 RN/L = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-5.900	-5.990	1.54000	-.03910	-.04120	-.02950	-.00330	-.00750	-.02950	-.05970	-.04120	-.01960
-5.900	-4.050	1.54000	-.03930	-.04950	-.01780	-.01310	-.00340	-.02030	-.07170	-.03760	-.01250
-5.910	-.510	1.54000	-.05250	-.03060	.00480	-.02050	.01280	-.00220	-.08990	-.03900	-.00090
-5.880	3.860	1.54000	-.04680	-.02240	.01500	-.00720	.01260	.01360	-.12630	-.02510	.00780
-5.860	5.860	1.54000	-.04600	-.03220	.02500	-.00960	.01410	.02200	-.13450	-.02580	.01380
	GRADIENT	.00000	-.00086	.00337	.00408	.00083	.00194	.00426	-.00696	.00164	.00254

RUN NO. 534/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-3.910	-5.930	1.54000	-.05200	-.06390	-.03730	-.00330	-.01830	-.02900	-.06090	-.04100	-.02000
-3.900	-4.000	1.54000	-.03930	-.06050	-.03000	-.01210	-.01890	-.02210	-.06150	-.04340	-.01360
-3.900	-.530	1.54000	-.03630	-.03770	.00200	-.00060	.00540	-.00130	-.08250	-.03760	-.00230
-3.910	3.780	1.54000	-.04210	-.02320	.01990	.00810	.00460	.01340	-.11200	-.03230	.00630
-3.910	5.790	1.54000	-.03450	-.02560	.02380	.00800	.00260	.02150	-.12010	-.03020	.01340
	GRADIENT	.00000	-.00040	.00474	.00632	.00257	.00289	.00452	-.00651	.00142	.00254

IA190B, GH2 PRESSURE LINE RAMP OFF

(R3VD46) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN. XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 DB-ELV = -5.000

PARAMETRIC DATA

RUN NO. 535/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-.040	-5.880	1.54000	-.02400	-.08370	-.03160	-.00140	-.02170	-.02550	-.04510	-.04290	-.01930
-.030	-3.880	1.54000	-.02570	-.07620	-.02530	.00110	-.02360	-.01950	-.05200	-.04260	-.01210
-.020	-.320	1.54000	-.01710	-.08940	-.00120	.00200	-.01890	-.00380	-.07190	-.03700	.00270
-.010	4.150	1.54000	.00430	-.09490	.02230	.00190	-.01860	.01540	-.09310	-.04330	.01400
.000	6.130	1.54000	.01100	-.08110	.03160	.00790	-.02250	.02220	-.09140	-.04820	.02080
	GRADIENT	-.00000	.00378	-.00228	.00590	.00009	.00060	.00434	-.00510	-.00014	.00322

RUN NO. 536/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
3.780	-5.940	1.54000	-.00400	-.11050	-.03290	.00780	-.02590	-.02330	-.03230	-.11450	-.01220
3.790	-3.980	1.54000	-.00910	-.11010	-.02370	.00700	-.02590	-.01570	-.03500	-.11570	-.00610
3.750	-.500	1.54000	-.00790	-.10440	-.00430	.01520	-.01930	-.00190	-.04350	-.11100	.00750
3.830	3.750	1.54000	-.00620	-.07300	.01640	.01790	-.01390	.01560	-.05450	-.10930	.02040
3.860	5.730	1.54000	-.00100	-.06590	.02600	.01370	-.01780	.02370	-.05200	-.10770	.02680
	GRADIENT	-.00000	.00038	.00489	.00518	.00138	.00154	.00405	-.00253	.00081	.00341

RUN NO. 537/ 0 RN/L = 2.79 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
5.730	-6.000	1.54000	.00500	-.10710	-.02990	.01300	-.03560	-.02030	-.01510	-.12940	-.01220
5.760	-4.040	1.54000	.00110	-.11540	-.01910	.01330	-.03170	-.01570	-.02850	-.11580	-.00650
5.760	-.510	1.54000	.00060	-.10610	-.00020	.02160	-.02390	.00120	-.03820	-.12470	.00880
5.800	3.780	1.54000	-.00510	-.07260	.01990	.02430	-.01430	.01810	-.04880	-.13410	.02200
5.810	5.770	1.54000	.00070	-.06790	.03060	.01830	-.01550	.02430	-.04310	-.14380	.02910
	GRADIENT	.00000	-.00081	.00556	.00498	.00138	.00223	.00431	-.00259	-.00233	.00362

IA190B,GH2 PRESSURE LINE RAMPS OFF (R3VD47) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 539/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-5.910	-5.990	2.00000	-.07360	-.02560	-.02780	-.00510	.00260	-.02160	-.04050	-.04890	-.01800
-5.910	-4.050	2.00000	-.07520	-.01860	-.02100	-.00130	.00580	-.01350	-.04740	-.03800	-.01510
-5.920	-.510	2.00000	-.08250	-.03400	.00520	.00990	-.00620	.00410	-.05380	-.04310	.00200
-5.880	3.850	2.00000	-.04850	-.05680	.03040	.01230	-.01280	.01930	-.07200	-.05840	.01540
-5.860	5.850	2.00000	-.03950	-.05730	.03390	.00940	.00150	.02720	-.08580	-.05150	.02120
	GRADIENT	.00000	.00355	-.00485	.00648	.00168	-.00232	.00413	-.00315	-.00262	.00383

RUN NO. 540/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-3.910	-5.930	2.00000	-.06450	-.03510	-.02960	-.00240	-.01590	-.02250	-.03580	-.03690	-.01770
-3.900	-4.000	2.00000	-.05790	-.03570	-.00990	-.00480	-.01090	-.01520	-.04120	-.05010	-.01080
-3.900	-.530	2.00000	-.06010	-.02120	.00270	.01090	.00960	.00170	-.05030	-.06020	.00240
-3.910	3.780	2.00000	-.05810	-.03050	.02300	.01910	-.00850	.01800	-.06500	-.06350	.01580
-3.910	5.780	2.00000	-.04300	-.04120	.03290	.01830	-.00740	.02480	-.08000	-.04590	.01850
	GRADIENT	.00000	-.00001	.00056	.00425	.00303	.00031	.00425	-.00307	-.00168	.00341

RUN NO. 541/ 0 RN/L = 2.83 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-.050	-5.850	2.00000	-.03940	-.07100	-.02400	.00890	-.01470	-.02430	-.02770	-.06000	-.01720
-.030	-3.880	2.00000	-.03690	-.05820	-.00880	.01670	-.01540	-.01610	-.03190	-.06070	-.01050
-.020	-.320	2.00000	-.03590	-.04250	.01090	.02050	-.01810	.00120	-.04650	-.05620	.00400
-.010	4.150	2.00000	-.02190	-.04560	.02930	.01960	-.02590	.01850	-.06390	-.04810	.01560
.000	6.130	2.00000	-.01430	-.05020	.04160	.02400	-.02120	.02640	-.07130	-.04480	.02230
	GRADIENT	.00000	.00192	.00147	.00472	.00034	-.00133	.00429	-.00398	.00158	.00322

RUN NO. 542/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
3.780	-5.930	2.00000	-.03370	-.07390	-.02700	.01520	-.01430	-.02480	-.00940	-.11740	-.01490
3.790	-3.970	2.00000	-.03680	-.06720	-.01860	.01950	-.01310	-.01770	-.01080	-.11700	-.00760
3.750	-.500	2.00000	-.03770	-.06260	.00180	.02330	-.01890	-.00070	-.03230	-.11100	.00610
3.830	3.740	2.00000	-.03170	-.03940	.01860	.02300	-.02740	.01690	-.04410	-.10970	.01870
3.860	5.730	2.00000	-.02510	-.04640	.02680	.02790	-.02670	.02340	-.05150	-.09940	.02480
	GRADIENT	.00000	.00069	.00367	.00479	.00043	-.00186	.00448	-.00426	.00092	.00340

IA1908.GH2 PRESSURE LINE RAMP5 OFF (R3VD47) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT MACH = 2.000 Q(PSF) = 600.000
 LREF = .0000 INCHES YMRP = .0000 IN. YT IB-ELV = 8.000 OB-ELV = -5.000
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

RUN NO. 543/ 0 RN/L = 2.82 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
5.730	-6.000	2.00000	-.02500	-.08680	.02080	-.01820	-.02560	-.01880	-.11380	-.01410
5.760	-4.040	2.00000	-.02980	-.07820	.02460	-.01700	-.01800	-.02090	-.11770	-.00870
5.750	-.510	2.00000	-.02790	-.05560	.02610	-.01960	-.00010	-.03160	-.12940	.00710
5.800	3.780	2.00000	-.02270	-.03790	.02820	-.02670	.01800	-.03910	-.12920	.02050
5.820	5.770	2.00000	-.02050	-.04260	.02970	-.02590	.02510	-.04590	-.11560	.02560
	GRADIENT	.00000	.00092	.00512	.00046	-.00126	.00459	-.00231	-.00142	.00371

IA1908.GH2 PRESSURE LINE RAMP5 OFF (R3VD48) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT MACH = 2.500 Q(PSF) = 600.000
 LREF = .0000 INCHES YMRP = .0000 IN. YT IB-ELV = 8.000 OB-ELV = -5.000
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

RUN NO. 545/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-5.900	-5.990	2.50000	-.07950	-.01060	.00830	-.00890	-.02540	-.03700	-.07160	-.01710
-5.900	-4.050	2.50000	-.07920	.01050	.01270	-.01240	-.01830	-.04030	-.04620	-.01310
-5.910	-.510	2.50000	-.07390	-.00220	.01350	-.01160	-.00210	-.04090	-.03970	.00040
-5.880	3.850	2.50000	-.04280	-.04210	.00990	-.01400	.01530	-.04460	-.06250	.01600
-5.860	5.850	2.50000	-.01620	-.07180	.01310	-.01010	.02260	-.04540	-.06340	.02290
	GRADIENT	.00000	.00470	-.00675	-.00037	-.00022	.00424	-.00056	-.00218	.00368

RUN NO. 546/ 0 RN/L = 3.07 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-3.910	-5.930	2.50000	-.06950	-.03110	.01000	-.01550	-.02480	-.03300	-.05260	-.01840
-3.900	-4.000	2.50000	-.06920	-.01000	.00980	-.01400	-.01860	-.03530	-.08170	-.01110
-3.900	-.530	2.50000	-.06370	.01260	.02030	-.01660	-.00350	-.04390	-.07310	.00130
-3.910	3.780	2.50000	-.04380	-.04170	.01320	-.01430	.01360	-.04390	-.04560	.01460
-3.910	5.780	2.50000	-.04120	-.04050	.01480	-.01550	.02180	-.04680	-.07350	.02100
	GRADIENT	.00000	.00332	-.00441	.00042	-.00002	.00413	-.00106	.00471	.00329

IA190B, GH2 PRESSURE LINE RAMPS OFF

(R3VD48) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 TB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 547/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
- .050	-5.850	2.50000	- .04860	.01570	-.02490	-.01470	-.02620	-.06440	-.03500	-.02620	-.01690
- .030	-3.880	2.50000	- .04880	.01560	-.02670	-.01970	-.01730	-.05460	-.02670	-.01730	-.01250
- .020	- .320	2.50000	- .04630	.00960	-.00270	-.03170	.00050	-.04790	-.00270	.00050	.00080
- .010	4.150	2.50000	- .03770	.00760	.02230	-.03220	.01760	-.04010	.02230	.01760	.01280
.000	6.130	2.50000	- .03580	.01200	.02850	-.03220	.02500	-.04690	.02850	.02500	.02010
GRADIENT		.00000	.00140	-.00097	.00608	-.00150	.00432	.00180	.00608	.00432	.00313

RUN NO. 548/ 0 RN/L = 3.06 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
3.780	-5.930	2.50000	- .04210	.01460	-.01230	-.02250	-.02480	-.01260	-.03410	-.02480	-.01540
3.790	-3.970	2.50000	- .04440	.01560	-.00660	-.02750	-.01590	-.01300	-.02830	-.01590	-.00990
3.750	- .500	2.50000	- .04490	.01080	-.01010	-.03990	.00130	-.01320	-.00940	.00130	.00430
3.830	3.740	2.50000	- .04440	.01510	-.01580	-.03880	.01820	-.01250	.00900	.01820	.01730
3.860	5.730	2.50000	- .03890	.01600	-.03020	-.04070	.02440	-.01150	.01500	.02440	.02300
GRADIENT		-.00000	.00000	-.00003	.00120	-.00140	.00441	.00066	.00482	.00441	.00351

RUN NO. 549/ 0 RN/L = 3.05 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CYB6	CYB7	CYB8	CAB6	CAB7	CAB8
5.740	-6.000	2.50000	- .03960	.01580	-.01030	-.01740	-.02400	-.01370	-.04300	-.02400	-.01590
5.760	-4.040	2.50000	- .04240	.01330	-.00590	-.02630	-.01700	-.01370	-.03730	-.01700	-.01070
5.760	- .510	2.50000	- .04900	.01590	-.00800	-.03870	.00190	-.01280	-.01670	.00190	.00310
5.800	3.780	2.50000	- .03960	.01620	-.00650	-.04030	.01870	-.01260	.00880	.01870	.01660
5.810	5.770	2.50000	- .03430	.01890	-.01500	-.04420	.02690	-.01200	.01550	.02690	.02220
GRADIENT		.00000	.00042	.00036	-.00006	-.00174	.00454	.00135	.00590	.00454	.00348

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

PAGE 100

IA190B,GH2 PRESSURE LINE RAMPS OFF (R3VD49) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 538/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB6	CYB6	CNB7	CYB7	CNB8	CYB8	CAB8
-.320	-5.910	1.54000	-.05580	-.02870	-.00880	.01300	-.09310	-.04120	.00290
-.330	-3.880	1.54000	-.03930	-.03710	.00420	.00430	-.08450	-.03840	-.00010
-.350	.100	1.54000	-.01570	-.08670	.00910	-.01740	-.07030	-.03540	.00350
-.380	4.190	1.54000	-.00460	-.10560	.02110	-.02040	-.04330	-.11340	.00840
-.380	6.190	1.54000	.00010	-.10570	.02520	-.02350	-.03800	-.12780	.00940
GRADIENT		-.00000	.00429	-.00847	.00210	-.00305	.00511	-.00934	.00105

IA190B,GH2 PRESSURE LINE RAMPS OFF

(R3VD50) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.000 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 544/ 0 RN/L = 2.81 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB6	CYB6	CNB7	CYB7	CNB8	CYB8	CAB8
-.320	-5.910	2.00000	-.08630	-.03590	.01160	-.00230	-.05580	-.04470	.00320
-.340	-3.890	2.00000	-.06610	-.02070	.01600	-.00880	-.05530	-.06120	.00360
-.350	.100	2.00000	-.03960	-.04450	.02000	-.01930	-.04640	-.05440	.00430
-.380	4.190	2.00000	-.03560	-.05900	.02560	-.01890	-.03260	-.11630	.00770
-.380	6.190	2.00000	-.02510	-.05830	.02740	-.02040	-.02960	-.12940	.00730
GRADIENT		.00000	.00376	-.00474	.00119	-.00124	.00281	-.00685	.00051

DATE 19 OCT 84

TABULATED FORCE COEFFICIENT SOURCE DATA FOR TEST IA190B

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IA190B.GH2 PRESSURE LINE RAMPS OFF

(R3VD51) (29 AUG 80)

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 2.500 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 550/ 0 RN/L = 3.05 GRADIENT INTERVAL = -5.00/ 5.00

ALPHA	BETA	MACH	CNB6	CNB7	CNB8	CNB7	CNB8	CNB8
-320	-5.910	2.50000	-.06720	-.02820	-.01500	-.01630	-.04430	-.06830
-330	-3.890	2.50000	-.06480	-.00960	-.01390	-.01820	-.04590	-.07530
-350	.100	2.50000	-.04960	-.03110	-.00350	-.03480	-.03650	-.04860
-380	4.190	2.50000	-.04010	-.06070	-.00850	-.04180	-.00790	-.13930
-380	6.190	2.50000	-.03990	-.06150	-.00110	-.03720	-.00410	-.12840
GRADIENT		-.00000	.00305	-.00869	.00066	-.00292	.00471	-.00798

REFERENCE DATA

SREF = .0171 SQ. IN XMRP = .0000 IN. XT
 LREF = .0000 INCHES YMRP = .0000 IN. YT
 BREF = .0000 INCHES ZMRP = .0000 IN. ZT
 SCALE = .0300

PARAMETRIC DATA

MACH = 1.550 Q(PSF) = 600.000
 IB-ELV = 8.000 OB-ELV = -5.000

RUN NO. 552/ 0 RN/L = 2.80 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CNB7	CNB8	CNB8
-5.910	-5.990	1.54000	-.04140	-.04060	-.04320	.00920	-.05700	-.03630
-5.920	-5.510	1.54000	-.04860	-.02620	-.01510	.02610	-.08630	-.03280
-5.860	5.850	1.54000	-.04030	-.02830	.01510	.02420	-.13130	-.01930
GRADIENT		.00000	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO. 553/ 0 RN/L = 2.78 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CNB7	CNB8	CNB7	CNB8	CNB8
-3.920	-5.970	1.54000	-.04940	-.06020	-.04430	.00340	-.05890	-.03570
-3.900	-4.000	1.54000	-.02730	-.05720	-.04080	-.00130	-.05880	-.03960
-3.900	-.530	1.54000	-.03270	-.03570	-.02090	.01810	-.08010	-.03100
-3.910	3.780	1.54000	-.03840	-.02320	.00550	.01660	-.10710	-.02730
GRADIENT		.00000	-.00142	.00431	.00596	.00220	-.00621	.00155

IA190B.GH2 PRESSURE LINE RAMPS ON + OIL FLOW

(R3VD52) (29 AUG 80)

IA190B,GH2 PRESSURE LINE RAMPS ON + OIL FLOW

(R3VD52) (29 AUG 80)

REFERENCE DATA

SREF	=	.0171	SQ.	IN	XMRP	=	.0000	IN.	XT
LREF	=	.0000	INCHES		YMRP	=	.0000	IN.	YT
BREF	=	.0000	INCHES		ZMRP	=	.0000	IN.	ZT
SCALE	=	.0300							

MACH	=	1.550	Q(PSF)	=	600.000
IB-ELV	=	8.000	OB-ELV	=	-5.000

PARAMETRIC DATA

RUN NO. 554/ 0 RN/L = 2.77 GRADIENT INTERVAL = -5.00/ 5.00

BETA	ALPHA	MACH	CNB6	CYB6	CAR6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-0.30	-5.890	1.54000	-0.02320	-0.08040	-0.04670	.00060	-.00120	-.03160	-.03950	-.03420	-.02110
-0.30	-3.880	1.54000	-0.02440	-0.06940	-.03860	.00320	-.00620	-.02480	-.04840	-.03550	-.01440
-0.20	-3.330	1.54000	-0.01390	-0.08330	-.02640	.00340	-.00160	-.01160	-.06150	-.02740	-.00170
-0.10	4.150	1.54000	.00670	-.08980	.00790	.00170	.00040	.01110	-.08960	-.03750	.01300
.000	6.130	1.54000	.01340	-.08070	.01320	.00660	-.00820	.01770	-.08910	-.04300	.01880
GRADIENT			.00390	-.00249	.00585	-.00020	.00070	-.00450	-.00512	-.00034	.00341

RUN NO.	555/ 0	RN/L =	2.77	GRADIENT	INTERVAL =	-5.00/	5.00
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BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
3.760	-3.960	1.54000	- .00840	- .10650	- .03830	.00390	- .01240	- .02160	- .02960	- .10870	- .00790
3.750	- .500	1.54000	- .00880	- .09980	- .02290	.00920	- .00150	- .00910	- .03880	- .10500	.00690
3.830	3.740	1.54000	- .00220	- .06740	- .00550	.01310	.00310	.01040	- .05230	- .10490	.01950
GRADIENT		- .00000	.00083	.00517	.00573	.00118	.00198	.00417	- .00296	.00048	.00354

RUN NO.	556/ 0	RN/L =	2.76	GRADIENT	INTERVAL =	-5.00/	5.00
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[illegible]

IA190B,GH2 PRESSURE LINE RAMP5 ON + OIL FLOW

(R3VD53) (29 AUG 80)

REFERENCE DATA

SREF	=	.0171	SQ.	IN	XMRP	=	.0000	IN.	XT
LREF	=	.0000	INCHES		YMRP	=	.0000	IN.	YT
BREF	=	.0000	INCHES		ZMRP	=	.0000	IN.	ZT
SCALE	=	.0300							

MACH	=	2.000	Q(PSF)	=	600.000
IB-ELV	=	8.000	OB-ELV	=	-5.000

PARAMETRIC DATA

RUN NO.	557/ 0	RN/L =	2.78	GRADIENT INTERVAL =	-5.00/ 5.00
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ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-5.990	2.00000	-.06470	-.02620	-.04160	-.00840	.01920	-.02760	-.03530	-.04120	-.01940
-.510	2.00000	-.07010	-.03160	-.01360	.01300	.01240	-.00450	-.05070	.03640	.00090
5.850	2.00000	-.02980	-.05230	.01840	.00980	.01700	.02100	-.08840	-.04270	.01900
GRADIENT	.00000	.00000	.00000	.00030	.00000	.00000	.00000	.00000	.00000	.00000

RUN NO.	558/ 0	RN/L =	2.79	GRADIENT INTERVAL =	-5.00/ 5.00
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ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-4.000	2.0000G	-.05200	-.03160	-.03480	-.00220	.01150	-.02160	-.03920	-.04830	-.01110
-.530	2.00000	-.05570	-.01990	-.02180	.00990	.01160	-.00770	-.05100	-.05320	-.00010
3.780	2.00000	-.05020	-.03220	.01280	.01550	.01240	.01100	-.06600	-.05370	.01330
GRADIENT	.00000	.00027	-.00019	.00619	.00224	.00012	.00420	-.00345	-.00067	-.00314

RUN NO.	559/ 0	RN/L =	2.79	GRADIENT INTERVAL =	-5.00/ 5.00
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ALPHA	MACH	CN66	CY66	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-5.890	2.00000	-0.3330	-0.0790	-0.3710	-0.0940	-0.0850	-0.02850	-0.02350	-0.05510	-0.01710
-3.880	2.00000	-0.3150	-0.0540	-0.3150	-0.1540	-0.0540	-0.02260	-0.02950	-0.05400	-0.01250
-3.30	2.00000	-0.2930	-0.0410	-0.1170	-0.1660	-0.0170	-0.00850	-0.04570	-0.04950	-0.01000
4.150	2.00000	-0.1430	-0.3830	-0.1380	-0.1540	-0.0540	-0.01260	-0.06200	-0.04050	-0.01400
6.130	2.00000	-0.0880	-0.4450	-0.2480	-0.2040	-0.0160	-0.02020	-0.07010	-0.03540	-0.02100
GRADIENT	0.00000	0.00219	0.00190	0.00564	-0.00001	-0.00135	0.00400	-0.00403	-0.00170	-0.00328

RUN NO.	560/ 0	RN/L =	2.78	GRADIENT INTERVAL =	-5.00/ 5.00
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ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-3.960	2.00000	-.02760	-.06160	-.02960	.01830	.00930	-.02170	-.01010	-.11180	-.00820
-.500	2.00000	-.03070	-.05540	-.01730	.01890	.00000	-.00850	-.03140	-.10310	.00570
3.740	2.00000	-.02350	-.03320	.00410	.02060	-.00930	.01370	-.04580	-.10020	.01890
GRADIENT	.00000	.00058	.00375	.00440	.00030	-.00241	.00462	-.00459	.00148	.00350

RUN NO.	561/ 0	RN/L =	2.78	GRADIENT INTERVAL =	-5.00/ 5.00
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ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-6.010	2.00000	-.02010	-.08160	-.04710	.01900	.00460	-.02930	-.01420	-.10940	-.01430
-.510	2.00000	-.02200	-.04710	-.02550	.02300	-.00260	-.00660	-.03000	-.12880	.00730
5.770	2.00000	-.01070	-.03640	.01240	.02730	-.01000	.02110	-.04350	-.10760	.02500
GRADIENT	.00000	.00000	.00000	.00000	.00000	.00000*	.00000	.00000	.00000	.00000

IA190B,GH2 PRESSURE LINE RAMPS ON + OIL FLOW

(R3VD54) (31 JUL 80)

REFERENCE DATA

SREF	=
LREF	=
BREF	=
SCALE	=

.0171	SQ. IN	XMRP	=	.0000	IN. XT
.0000	INCHES	YMRP	=	.0000	IN. YT
.0000	INCHES	ZMRP	=	.0000	IN. ZT
.0300					

MACH	=	2.500	Q(PSF)	=	600.000
IB-ELV	=	8.000	OB-ELV	=	-5.000

PARAMETRIC DATA

RUN NO.	562/ 0	RN/L =	3.02	GRADIENT INTERVAL =	-5.00/ 5.00
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[illegible]

RUN NO.	563/ 0	RN/L =	3.01	GRADIENT INTERVAL =	-5.00/	5.00
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BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-3.900	-4.000	2.50000	-.05980	-.00370	-.03300	.00790	.00310	-.03260	-.03060	.07740	-.01150
-3.900	-.530	2.50000	-.05430	.01810	-.01850	.00990	.00230	-.00980	-.03850	-.06980	.00290
-3.910	3.780	2.50000	-.03590	-.03970	.01200	.01090	.00310	.01230	-.03730	-.04080	.01510
	GRADIENT	.00000	.00312	-.00498	.00584	.00038	.00001	-.00448	-.00082	.00478	.00340

RUN NO.	564/ 0	RN/L =	3.01	GRADIENT INTERVAL =	-5.00/ 5.00
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BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
-0.30	-5.890	2.50000	-.03810	-.07000	-.04140.	.01330	.00310	-.02820	-.01950	-.05410	-.01700
-0.30	-3.880	2.50000	-.04160	-.05010	-.03440	.01830	.00200	-.02010	-.02360	-.04550	-.01110
-0.20	2.50000	2.50000	-.04020	-.02550	-.01560	.00840	-.01580	-.00190	-.03110	-.04500	-.00210
-0.10	4.150	2.50000	-.03480	-.02500	-.00390	.00360	-.01780	.01650	-.04300	-.01400	-.01400
.000	6.130	2.50000	-.03010	-.03860	-.00800	.00630	-.01980	.02330	-.05070	-.02080	-.02080
GRADIENT		.00000	-.00086	-.00287	-.00375	-.00180	-.00238	-.00454	-.00253	-.00157	-.00311

RUN NO.	565/ 0	RN/L =	3.00	GRADIENT INTERVAL =	-5.00/	5.00
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	BETA	ALPHA	MACH	CNB6	CYB6	CAB6	CNB7	CYB7	CAB7	CNB8	CYB8	CAB8
	3.790	-3.970	2.50000	-.03470	-.05910	-.04090	.01030	-.01390	-.01970	-.00260	-.12700	-.00900
	3.750	-.500	2.50000	-.03680	-.04740	-.02610	.01010	-.02510	-.00140	-.00560	-.12820	-.00580
	3.830	3.740	2.50000	-.04030	-.04050	-.00520	.00930	-.02630	.01650	-.01300	-.11940	.01810
GRADIENT			-.00000	-.00073	-.00238	-.00464	-.00013	-.00156	-.00468	-.00136	-.00103	-.00349

RUN NO. 566/ 0 RN/L = 3.00 GRADIENT INTERVAL = -5.00/ 5.00

[illegible]